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Explaining achievement : an assessment of G. Bateson's ecology of mind.

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EXPLAINING ACHIEVEMENT:

AN ASSESSMENT OF G. BATESON'S ECOLOGY OF MIND

A Dissertation Presented

by

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For Clare,

Who insisted.

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A work this long in the making accrues many debts. My oldest are to Richard Perkins, for Nietzsche; to Paul Oskar Kristeller, for Aristotle; and to M. Lee Manchester, for fellow travelling. From them I learned what it means to be a scholar.

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And last, but not least, I am indebted to Michael Greenebaum, who introduced me to Gregory Bateson. From them I learned just how much I still had to learn.

ABSTRACT

EXPLAINING ACHIEVEMENT:

AN ASSESSMENT OF G. BATESON'S ECOLOGY OF MIND

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Gregory Bateson's research spanned many fields. The critical literature on him is mostly limited to assessments of his work within anthropology, psychology, and ethology. This study assesses Bateson's contribution to the methodology of the behavioral sciences generally. It proceeds by applying his methods to the ancient question, "Why does man pursue virtue?" and to its modern rephrasing in terms of excellence or achievement. Bateson himself only touched on this question without answering it.

To evaluate Bateson's methodological approach against other approaches in the behavioral sciences, this study examines how other thinkers have explained achievement, using Bateson's tools and methods to critique or restate their conclusions. Major positions examined include those of Plato, Aristotle, Descartes, Spinoza, Nietzsche, Freud, Skinner, and McClelland.

The principle conclusion drawn from this study is that Bateson's approach accounts for earlier explanations of achieving behavior within a broader framework suggesting new insights with more practical applications. Its success in explaining achievement argues for its general significance within the behavioral sciences. The approach involves a fundamental rethinking of what Aristotle called "formal causation." Cybernetics, information theory, organization theory and the other new mathematical theories comprising the cognitive sciences all purport to explain as well as describe our world. Bateson's work helps explain how this is possible.

Bateson's essential contribution is his contextual theory of learning, which directly challenges the associational theory of learning that underlies most modern empirical research in the behavioral sciences. Bateson explains phenomena as diverse as character development and creativity, mammalian play and certain forms of schizophrenia in terms

of hierarchies of context and the conflicts between them. And he does so within the generally accepted parameters of evolutionary theory that informs our modern understanding of biology and behavioral science.

It is a major achievement and, as a first attempt to comprehend the foundations of a cognitive science still in its fledgling stages, will likely be appreciated more as time goes on.

TABLE OF CONTENTS

CHAPTER 1

DOUBLE DESCRIPTION OF THE PROBLEM

Some men seem able to go on working steadily with little success and no reassurance from outside. I am not one of these. I have needed to know that somebody else believed that my work had promise and direction, and I have often been surprised that others had faith in me when I had very little in myself. I have, at times, even tried to shrug off the responsibility which their continued faith imposed on me by thinking, "But they don't really know what I am doing. How can they know when I myself do not?"

Gregory Bateson 1972, ix

Gregory Bateson (1904-1981) is not a household name. He was a generalist in an age of specialists, and though he made important contributions in fields as diverse as anthropology, psychiatry, evolutionary theory, and ethology he was a relatively minor figure in each (Lipset 1980, 232). He held no vaunted academic positions and wrote no great, seminal works. His one book that did gain notoriety (and a series of paperback reissues) was compiled of previously published articles towards the end of his career and was embraced mainly by the academically disenfranchised counter-culture of the

60's. The quote above is from the Foreword to that book, Steps to an Ecology of Mind. While prefaces and forewords are typically humble as they set about thanking those who helped midwife the book that follows, it is rare to find one as self-effacing as this:

> My first anthropological field work among the Baining of New Britain was a failure, and I had a period of partial failure in research with dolphins. Neither of these failures has ever been held against me. I therefore have to thank many people and institutions for backing me, at times when I did not consider myself a good bet. (Bateson 1972, ix)

He goes on to speak of other failures and of the desparate pleas for grants that marked his career. And he seems fully to accept his lesser rank among the luminaries of his time: "It is no mean comfort, at times when the next idea cannot be found and the whole enterprise seems futile, to remember that greater men have wrestled with the same problems" (Bateson 1972, x). Bateson's unswerving commitment to his theoretical research despite all these setbacks, hardships, and insecurities seems remarkable.

On the other hand, owing to of the fame of his father William Bateson, a noted biologist who helped introduce Mendel's genetic theory, and his own marriage to the hugely famous Margaret Mead, it must be said that doors were open to him that others might have found closed. He was fortunate to have so "many people and institutions" to thank for backing him. And in the end, his career surely justified their faith, scoring many more achievements than failures, as witness his pioneering use of the camera in anthropological fieldwork; his

introduction of the notion of cultural "schismogenesis" - a form of positive feedback before that term was even coined; his subsequent involvement with the founders of cybernetics; and his framing of the double-bind theory of schizophrenia.

Gregory Bateson's career, in short, had its ups and downs, while eventually establishing him as a scientist and thinker of note. As his biographer, David Lipset, notes:

> Although there has been no paradigm change at the level of those initiated by his namesake, Gregor Mendel, or led by his father, William Bateson; still, the immediate consequences of his thought are not insignificant: books and articles known as classic in their field and influence upon leading members of every discipline to which he associated. In late 1979, he may appear to have fallen short of the highest realms of scientific achievement . . . But if his questions and ideals sometimes exceed him, they do so from a tantalizing distance rather than from an impossible one. It remains to be seen what the future will make of them and of him (Lipset 1980, 302)

I recount this rather qualified estimation from Bateson's biographer along with Bateson's own confessions of self-doubt, and list the peculiarly scattered highlights in his life and work by way of contrast with some very different assessments of his achievement that Bateson himself made over the last few years of his life. Towards the end of his career, Bateson began to feel that the seemingly disparate threads of his varied theoretical pursuits could be woven together to powerful effect. In various articles and addresses from this period, he reviews his intellectual development and argues for its underlying

coherence. In the Introduction to Steps to an Ecology of Mind, after all the confessions of early failures in his Forward, he claims

> It was only in late 1969 that I became fully conscious of what I had been doing. With the writing of the Korzybski Lecture, "Form, Substance, and Difference," I found that in my work with primitive peoples, schizophrenia, biological symmetry, and in my discontent with the conventional theories of evolution and learning, I had identified a widely scattered set of bench marks or points of reference from which a new scientific territory could be defined. These bench marks I have called "steps" in the title of the book. (Bateson 1972, xvi)

Indeed, Bateson envisioned not just a new scientific territory, but a whole new science taking shape around the ideas he was working with. In a later address, he envisions that

> The new science will form around profoundly nonphysical ideas: the nature of the relation between name and that which is named, the nature of recursive systems, and the nature of difference. (Bateson 1991, 157)

In the title of his 1972 book, he offered a tentative name for that new science: the "ecology of mind", which he describes as

> a new way of thinking about *ideas* and those aggregates of ideas which I call 'minds.' . . . It is a science which does not yet exist as an organized body of theory or knowledge. (Bateson 1972, xv)

Bateson envisioned more than just a new science. In an address at the Langley Porter Clinic where his team had framed the double bind theory of schizophrenia twenty years before, he argued that the ideas they developed then had opened a new era in psychiatry and in the behavioral sciences as a whole:

> These questions . . .were the beginnings of a profound change in the paradigms of psychiatric theory. Indeed, the whole of our thinking -- our ideas of how to think -- about problems of behavioral science has changed.
>
> From now on the focus of theory in these sciences will inevitably be upon form rather than content . . .
>
> We were not alone in this change of focus from content and narrative to form. Warren McCulloch was with us, and a few others. But we at Langley Porter had the thrill of being in the front line. (Bateson 1991, 156)

Bateson speaks of a "change in the paradigms", recalling that badly overused phrase, "paradigm shift." Here it still conforms to Thomas Kuhn's original notion of a shift in the conceptual and methodological foundations of a field - a revolution in how we approach and understand a subject. And Bateson is proposing his new paradigm not only for psychiatry but for the behavioral sciences as a whole. His literary executor, Rodney Donaldson, writes in his introduction to Bateson's last collection of essays,

> Bateson sought continually to elucidate the basis of form and pattern in the living world. As a result, he is a primary harbinger of what may be a major shift in Western thought, a paradigmatic shift from a mindless bio-sphere to one arising in and through mental process. (Bateson 1991, xi)

That is a formidable claim and a considerable achievement should it prove true. A paradigm shift of that magnitude recalls the comedic rant from the 60's: "Everything you know is wrong." While behavioral science isn't everything, it covers quite a bit of curriculum. All the applied behavioral sciences, from education to management to

psychiatry, would likely need reworking as well. How should we assess a claim like that? How might we measure Bateson's achievement with respect to new foundations for the behavioral sciences? That is the question that drives this study and provides the first description of our problem.

The first step to assessing his achievement might be to ask how Bateson's colleagues in the scientific community have assessed it. His own biographer, we saw, could credit Bateson with "no paradigm change at the level of those initiated by his namesake, Gregor Mendel" although genetic theory is a field where Bateson thought the shift in paradigms was already most in evidence. Genetic theory is replete with the language of messages, codes, and information that informs Bateson's own discourse. This wasn't Bateson's doing, however -- it was Mendel himself who posited patterns and rules as the basis of the field, and this in turn influenced Bateson. In the years since that biography was written, I've read nothing aside from Donaldson's panegyric to dispute Lipset's assessment. The old paradigms seem to be holding their own and Bateson's influence, frankly, seems negligible, his work in general neglected while this or that part of it is subject to occasional attack: the double bind theory, for instance, is hotly contested by neurophysiologists who trace schizophrenia to chemical irregularities in the brain (though Bateson anticipated this development, seeing his approach and theirs as complementary).

The fact is that there has been little critical review of Bateson's thought. There have been no book length studies, just one not very critical biography and a smattering of articles over the years that tend to focus on specific aspects of his work in some specific field or other.

The most extensive use of Bateson's ideas I've found is in linguist Deborah Tannen's recently popular works on conversational dynamics. She draws on his notions of schismogenesis and contextual framing to explain how understanding goes awry in our everyday exchanges (Tannen, 1986). Perhaps she represents the leading edge of a wave of younger researchers who will finally press Bateson's claims. Perhaps she is sailing solo on an ebbing tide. At this point, we can say only that Bateson's role as harbinger of "a major shift in Western thought" has yet to be addressed by the literature.

Did Bateson misestimate his accomplishment? Or have the implications of his work simply not been realized?

Bateson could certainly have misestimated, although he was not the sort of man given to vainglorious claims. He was, as we've seen, rather humble about his own accomplishments and readily credited the most fundamental principles of the new "ecology of ideas" to others - to Bertrand Russell and A.N. Whitehead, Warren McCullough, Norbert Weiner, Adelbert Ames, and such. He was, in fact, a very careful,

very skeptical theoretician. If he misestimated, it would be instructive to find out where he went wrong. Claims to new paradigms seem epidemic on the social scientific map these days and if Bateson was a progenitor of certain strains of these, as I think likely, a diagnosis might be useful in developing antidotal arguments and restoring our cognitive health.

On the other hand, it would be entirely in keeping with Kuhn's model of scientific revolutions were a challenge to fundamental paradigms to be stubbornly ignored or resisted till a younger generation was in position to take up the cause and make the case.

I find it more probable that the power of his ideas has not been fully appreciated for the simple reason that, being a man of many fields, he was finally claimed by none. In an age of specialists, who could assess such a broad-based synthesis? Who are the generic behavioral scientists? What method would they use to judge a position that rejects their entire methodology? It might seem the proper task of some branch of philosophy, but that was one field Bateson never formally enrolled in. Though he came to consider himself essentially an epistemologist, he drew a distinction between philosophical epistemology and that study of learning which is more properly a part of natural science and which he made his own. He never wrote for the journals of philosophers, or engaged in their debates. And they have replied in kind.

It must be said, too, that Bateson's ideas are not easily gotten hold of. A scientist by training, his *oeuvre* consists almost entirely of short journal articles that studiously avoid speculation. He offered no system and little synthesis of his key ideas. My guess is that a more coherent framework for the science he envisioned will be needed before the full weight of his achievement can be determined. And that won't happen until his methodology has been applied fruitfully to problems in a variety of behavioral disciplines. My intention here is to take one step in that direction, to attempt such an application and see what light it sheds on the significance of Bateson's "ecology of mind."

The problem I propose to consider is why people pursue achievement - not all people, perhaps, and none all the time, but enough to make a difference wherever civilization has taken root throughout recorded history. I am distinguishing civilization from those pre-literate cultures that have sustained their way of life with little change over long stretches of time, where "achievement," if at all translatable, may signify something rather different. Here it is taken to mean something accomplished by superior ability or special effort, and often in spite of obstacles and discouragements (*Random House Dictionary* 1987, 15) It signifies a noteworthy accomplishment, implying some

degree of public recognition as opposed to more private accomplishments like my five year old's learning to ride a bike. Discovering a new paradigm for the behavioral sciences would certainly be an achievement.

The question is virtually the same as that first posed by the ancient Greek philosophers: why does man seek virtue (*arete* - or as we would say today, "excellence")? Why does he (for the Greeks it was always "he") seek to be first among peers? What makes the question interesting are the "obstacles and discouragements" that so typically obstruct the path to achievement: the pursuit of excellence and the pursuit of happiness often seem headed in different directions. The biographies of the illustrious seem just as prone to unhappy endings as the untold stories of common folk, and those who pursue great deeds without success may indeed be unhappier than most.

The problemmatical nature of the pursuit of achievement is well illustrated by Bateson himself: What caused him to spurn the secure and easy path his talents and contacts so easily availed him? What sustained him through repeated false starts, failures, and self-doubts in the lifelong pursuit of intellectual attainment? While the faith of others must have been a comfort when the way grew dark, as Bateson himself suggested, what started him on that path to begin with? How does such commitment form? Of what is it made? More importantly, what kind of an answer -- what sort of explanation -- would we be looking for? How, indeed, would Bateson himself go about answering that

question? How would he use his ecology of ideas to address it? Taken together, these questions provide the second description of our problem here.

I have offered two "descriptions of the problem," although they appear to be simply two separate problems, in keeping with one of Bateson's fundamental methodological principles: the "method of double or multiple comparison" (Bateson 1979, 87). This refers to "the bonus of understanding which the combination of information affords" (Bateson 1979, 68). The combinations that Bateson extolled could be as simple as binocular vision, which affords the bonus of depth; or as complex as the comparison between learning and evolution, and both with epigenesis, that lay at the heart of his ecology of mind.

Double description provided Bateson with a "manner of search" - not a specific methodology so much as a general investigative approach: ". . . the combination of diverse pieces of information define(s) an approach of very great power to what I call 'the pattern which connects'" (Bateson 1979, 68). Bateson's concern for pattern is critical to the effectiveness of this approach, as it is to the formalist paradigm for behavioral science in general. Seemingly disparate phenomena, like learning and evolution can be fruitfully compared to the extent that both are stochastic processes (generating random elements within a selective framework). Understanding the general pattern of stochastic processes gives us a useful way of

comparing these phenomena - in terms of divergence (increasing unpredictability), the alteration of digital and analogic elements, and so on.

These patterns, however, are more than mere artifacts of our methodology to which the phenomena must be fitted as to some Procrustean bed. The formal patterns our analysis uncovers and elaborates should properly inform the phenomena themselves. Bateson admits to a certain Platonic realism in this regard (Bateson 1979, 4), although his forms hold sway primarily in the world of living things, defined by learning and by the information contained in DNA. Patterns for Bateson are always patterns of relationship, and these patterns inhere in the living things themselves. Bateson's double descriptions or multiple comparisons, in other words, are intended to prove most fruitful in comparing apples and oranges rather than apples and orangutans, inasmuch as fruits as a class are structured by their relationships to insects, soils, sunlight, the branches on which grow, etc. There are numerous real and parallel relationships there, more than in the other case. At its most rigorous, dual description forms the basis for "abduction", which is

> . . .[philosopher C.S.] Pierce's word for that part of the process of inquiry which proposes that a given set of phenomena is a case under some previously proposed rule. (Bateson 1991, 186)

A rule is a simply a pattern in the imperative mood. Finding that two or more seemingly disparate pieces of information fall under the same rule or pattern can be a source of deep insight:

> Every abduction may be seen as a double or multiple description of some object or event or sequence. If I examine the social organization of an Australian tribe and the sketch of natural relations upon which the totemism is based, I can see these two bodies of knowledge as related abductively, as both falling under the same rules.
>
> . . .Their ideas about nature, however fantastic, are supported by their social system; conversely, the social system is supported by their ideas of nature. (Bateson 1979, 143)

The doubly described problem that I have proposed here involves a comparison between the way in which Bateson's principles and methods might explain the pursuit of achievement and the way in which they might provide new foundations for the behavioral sciences as a whole. That is to say, I am less concerned with unearthing or reconstructing Bateson's explanation of the phenomenon of achievement (since he nowhere addresses that question directly) than with discovering what the "pattern" of his explanation - or his approach to one - might look like.

It is useful, I think, in assessing the value of Bateson's new paradigm to apply it to some problem he didn't take on himself. Defending territory already annexed -- enjoining the controversy over double bind theory, for instance -- would do little to advance the argument over paradigms. If Bateson's vision is to stand, it must be

extended. If it fails that test, then the defense of all his various ideas and their applications will grow tired.

Other questions might have been chosen. The question of achievement and why we pursue it has several advantages, however. First of all, it is worth asking. It is not a trivial question, but one that reaches down to the foundations of what it means to be human. No other animal on earth -- or machine intelligence -- shares this pursuit. That makes it an interesting test case for an approach that has its roots (as we'll see) in biology and cybernetics. *A fortiori*, as a pursuit that underlies our entire sense of ethics and human spirituality -- the no-man's land of scientific inquiry -- any light shed here would go a long way.

For these reasons, too, it is a question that has attracted speculation for millenia. Philosophers of every description grappled with it long before its devolution into the hands of modern psychology. That makes it a useful dredging device for unearthing rival paradigms.

It is also a question of fundamental importance for educators: if we are not able to inspire our students to the pursuit of achievement, then schooling will inevitably become more a matter of training than of education, a learning not for its own sake and for what is best in us, but simply for its use to other ends. How shall we inspire them to

that pursuit? How shall we persuade them that excellence is not just a corporate but a personal responsibility? Amid the growing evidence that mediocrity is become the standard by which academic effort is measured and that it erects no undue obstacles to wealth and power in our society, can we afford not to revisit the question of whence excellence comes?

Finally, I must admit to an aesthetic criterion in the choice of question, and perhaps a personal one as well. Bateson seems to me in many ways a misfit and melancholy figure. Never finding an academic home or security in his career; laboring in the shadow of, first, a famous father and then an even more famous wife; not knowing for a long time what the underlying coherence or significance of his work really was; then, at the point where he felt he finally understood its import and had garnered acclaim, realizing that most of his audience didn't understand at all:

> "One of the repetitive yearnings," his wife said, "in the early mornings has been, 'Has anybody heard me?' . . . And that's a terrible feeling to have when you are nearing the end of your life." (Lipset 1980, 255)

As the memory of him fades, so has his reputation. Bateson's achievements are a matter of question now, and it seems fitting in that case to consider his achievement together with the question of what motivated him -- and indeed, what motivates any of us -- along such a difficult and uncertain road. The two questions thus become one in his

person, so that either answer vouchsafes the other. In short, I hope to understand the man and assure that he is heard.

CHAPTER 2

MAPPING THE APPROACH

What leads human beings to pursue achievement is a surprisingly tough question, mostly because it is far from obvious what kind of answer would suffice or even what approach to take. What makes a falling body pursue contact with the earth is obviously a matter of physics. What makes a tree's roots pursue water is a matter of physiology and, ultimately, biochemistry. Like so many things human, however, the pursuit of excellence can conceivably be explained in many ways.

Consider the analogy of criminality: Why do some pursue the life of crime? Many would say it is a matter of choice: believing he can get away with it, the criminal opts for a shortcut on the road to success. Others would say it is less a matter of choice than of upbringing, the crime-prone personality being established in the formative years of life within a dysfunctional family. Others blame criminality on a society rife with injustice and inequity, while still others will argue

that the criminal mind can be traced to its genetic inheritance. Many different kinds of answers, each with a claim to truth.

The pursuit of achievement has likewise been explained variously in terms of personal choice, personality, sociology, and socio-biology. I believe we can narrow the range of possible answers just a bit, however.

Unlike criminality, the pursuit of achievement can't plausibly be explained by the standard calculations of self-interest which economists expect of their ever-maximizing "rational man." The rewards are neither clear nor calculable. Bateson himself, we've noted, left the clear path to social and material reward when he forsook his initial preparation and patrimony in biology for graduate work in what was then the new and not so reputable field of anthropology. Then, having secured his reputation (and matrimony) there, he abandoned anthropology for the life of an itinerant researcher with no discernible disciplinary base. An intellectual free lancer, he was from that time on never financially secure, never tenured, always in anxious pursuit of some grant just to keep his researches going. He had no reason to believe he would ever achieve anything to materially redeem his situation, and yet he never deviated from his thought-path.

He was clearly less motivated by the extrinsic rewards of intellectual life (whatever riches or recognition, power or position it

occasionally bestows) than by the intrinsic lure of theoretical discovery - "the pleasure of finding things out", as physicist Richard Feynman put it. Anyone reading this study has no doubt known that pleasure and hopes, perhaps, to rekindle it here. Such pleasures, of course, can be derived from non-intellectual accomplishment as well. There is surely some similar allure and pleasure in victory for athletes and generals, and some suitable analog for the artist or entrepreneur. And my son's pleasure at learning to ride his bike was certainly no less palpable. We can extend such examples indefinitely, eviscerating the explanatory power of the pleasure principle in the process. It's not enough, in other words, to say that people pursue achievement because it gives them pleasure. That only begs the question, which now shifts to the source and nature of the pleasure we take in achievement. If it was simply the pleasure of having completed a difficult task that gains approval from others, we might expect more commitment to homework or housework than we typically see.

If looking to the extrinsic or intrinsic rewards of achievement doesn't seem to get us very far, that is because the commitment to achievement -- or any other lifelong pursuit -- simply can not be explained in terms of reasons and choices consciously made. Reasons and choices are tied to circumstance, arising in response to the situations one confronts and the options available. A lifelong commitment, by definition, transcends the circumstances of any particular choice. If Bateson consciously made the choice at the

beginning of his career to pursue achievement, he certainly had ample opportunities and reasons later on to reverse that choice -- as have innumerable others who labor with less success but no less dedication. It is the constancy and consistency of choices over an individual's lifetime in favor of some particular value that needs explaining here.

This is true of criminality, too: though circumstances can drive anyone to an act of crime, it is the repeat offender -- the three or more time loser, in particular -- that demands explanation. If criminality were simply a matter of risk/benefit ratios and rational choice, our penal codes would provide more effective deterrence than they do. The situation of achievers is even less likely a matter of choice, since it is less likely that just anyone can be driven by circumstances into acts of achievement. In the cases of both the criminal and the achiever the reasons may change while the object of choice remains largely the same. How does such constancy come about?

Constancy is a mark of character. It is not a character trait, like loyalty, but a defining criterion such that someone who seems incapable of enduring commitments seems to us lacking in character. Though "character" carries ethical connotations, this linkage should not be taken ethically: the constancy of Don Juan's faithlessness, his devotion to a life of sexual conquest, is as much a mark of his character as the fidelity of Odysseus' beleaguered Penelope. Character

constrains our choices, and our character lies ultimately beyond our choosing.

To put it another way: explaining some particular choice of action in the context of its unfolding situation is the task of the historian; explaining a longterm, consistent pattern of choices is typically the task of the psycho-logist. As behavioral scientists, psychologists are less concerned with reasons than with causes. They seek explanations that can be generalized over many instances and individuals. Psychologists want to know why some choose the pleasures of intellectual discovery or sexual conquest while others are oblivious of or unwilling to commit to them. They wonder why some continue to pursue achievements that seem impossible to attain while others readily lower their expectations. They want to know how character traits are formed and how they are maintained.

I should note here that psychologists seem to talk more about personality than character. The terms are in some usages nearly synonomous, as when we refer to "character" as "the aggregate of features and traits that form the individual nature of some person" (*Random House Dictionary* 1987, 346), and to "personality" as "the sum total of the physical, mental, emotional, and social characteristics of an individual" (*Random House Dictionary* 1987, 1445).

But "personality" carries connotations of a public self, a self-for-others (as in a "pleasing personality"), while "character" retains the ethical overtones of a more inward determination. This makes personality the more easily observed and researched subject from the psychologists' point of view, but makes "character" the more appropriate heading, to my mind, for the dedication to achievement. More importantly, Bateson himself drew this distinction, using the phrase "personality and character" as though they were two sides of a coin (Bateson 1991, 9-25), and noting that "the person, after all, is the *mask*. It is what is perceivable of a human organism." (Bateson 1991, 75n). After his early collaborations with Margaret Mead on the problem of personality, questions of character became his abiding concern.

By eliminating reasons and choices from our possible explanations for achievement and by focusing on character, we seem committed to some sort of psychological explanation. We might expect to address the problem in terms of temperament or dispositions or some other psychological mechanism; but for all their concern with what goes on inside the mind, psychologists still oftimes arrive at sociological answers, as when the criminal mind is itself explained in terms of early family upbringing or some matrix of social pressures and inequities. Psychologists also seem comfortable with biogenetic explanation, as evidenced by the increasing acceptance of drug therapies for sex offenders and violent schizophrenics. Though crime,

like achievement, is a social construct which presumably lies beyond the determinations of biochemistry, the tendencies to aggression or social distance which feed criminal activity might very conceivably have a genetic basis. Achieving behavior might be genetically rooted in similar ways.

Diverse as these approaches seem, they needn't be mutually exclusive: certain instinctive tendencies may be channeled by social customs and institutions into behavioral patterns that individuals then develop dispositions for through reinforcements of various kinds. This pattern of explanation, which relies on a combination of psychological, sociological, and socio-biological factors can be applied to a wide range of character traits, from criminality to competitiveness to cross-dressing. It seems a reasonable model: it is inclusive rather than reductive, making room for competing viewpoints by showing how each complements the other. Is the model adequate? To answer that we need to know what the criteria might be for an adequate explanation. And to answer that, we need to ask first what it means to explain anything. Bateson wrestled with this question throughout his career, and we will need to grapple with it too.

Framed in this way, the question of how to explain a lifelong pursuit of achievement passes beyond the concerns of biographers or psychologists into questions of concern to the philosopher of science. That is where it is meant to go. Historians and behavioral scientists

may test the bounds of accepted methodologies when the data demand it, and still stay rooted in their chosen soil. But opposing the reigning methodologies with alternatives and seeking to reconceptualize foundations takes an act of philosophy, a discussion of what it means to explain something, hence a step into meta-language and an uprooting from familiar ground. That is what a fundamental paradigm shift entails. That is what Bateson intended, and that is where we're headed.

We have determined that our search for an explanation of achievement will bring us within the precincts of theories on character formation. We know, too, that the way of approach will find us exploring the fields (and avoiding the bogs) of philosophy. It remains to locate a starting point and initial direction for our quest. Perhaps we should just follow Bateson's steps.

While Bateson never, in his published work, posed the specific question of how to explain a commitment to achievement, the question of character formation intrigued him from his first book, *Naven*, to his last, *Mind and Nature*, published forty three years later. And it was this question as much as any that propelled his career-long quest to unravel the puzzles of biological and behavioral explanation. "*Naven*, "Bateson declared in an epilog for the 1958 edition of that book, "was

a study of the nature of explanation" (Bateson 1991, 49). Instead of answering his questions, the passing years seemed only to elaborate and deepen them: "The immediate task of this book," he writes in the introduction to his last published work, *Mind and Nature*

> . . .is to construct a picture of how the world is joined together in its mental aspects. How do ideas, information, steps of logical or pragmatic consistency, and the like fit together? How is logic, the classical procedure for making chains of ideas, related to an outside world of things and creatures, parts and wholes? (Bateson 1979, 19-20)

Considering the scope of Bateson's wide-ranging interests, it is amazing how faithful he remained to a few central questions. These questions first emerged from his attempts, as a budding anthropologist, to understand an odd set of sexually suggestive behaviors among an obscure people on the other side of the world.

Bateson's approach to anthropology was strongly influenced by A. R. Radcliffe-Brown, the founder of the British school of social anthropology, who viewed societies as organic wholes analogous to living organisms:

> The analogy suggested that the social structure of a society, by which he meant the system of subgroups, clans, moieties, age-grades, factions, was comparable in organization to the structure of an organism. Both remained constant over time -- internal relations persisted even though constituents were changing. (Lipset 1980, 124)

With his background in biology, Bateson understandably found this analogy attractive. The social anthropologists relied on functional analysis to explain the social activities they observed, much as physiologists explain bodily organs in terms of their functions:

> Radcliffe-Brown believed that the "function of any recurrent activity, such as the punishment of a crime or a funeral ceremony, is the part it plays in the social life as a whole, and therefore the contribution it makes to the maintenance of structural continuity. Following Durkheim, Radcliffe-Brown deduced individual behavior from social structure . . . As such, the psychology of individuals was irrelevant to the study of society. (Lipset 1980, 125)

But Bateson's work on *Naven* was also influenced by his fateful meeting with Margaret Mead (and her then husband, Reo Fortune) in 1932, while doing fieldwork among the Iatmul tribe along the Sepik River in New Guinea. According to Bateson's biographer,

> Mead had been trying to assess the contribution of culture to development of sex roles. Apart from innate biology, how did cultural patterning differentiate masculine and feminine personalities? . . . Among Bateson's Iatmul, there was a ceremony called *naven*, which dramatized the everyday [sex] roles -- by reversing them. Father's sisters and mother's brothers would exchange clothes; the men dressing in filthy skirts while the women adorned themselves in male finery, and strutted as they grated their husband's serrated lime sticks in and out of lime gourds. By contrasting these data, they worked out some ideas about the relations between sex roles and individual temperament -- which they understood to be the raw material of personality that culture shaped and selected. (Lipset 1980, 136)

Their discussions on the effects of culture on personality were greatly stimulated by the "arrival of a manuscript draft of Ruth Benedict's *Patterns of Culture* . . ." (Lipset 1980, 137). Benedict was

a former student of pioneering anthropologist Franz Boas at Columbia U., as was Mead:

> . . .Boasians were immured not with analogies borrowed from the natural sciences which suggested unitary notions of "system," but rather with the "psychological, aesthetic and humanistic" premise of "pattern," in which the idea of cultural integration was a problem and not a given.
>
> . . .Ruth Benedict had taken to psychological characterizations of cultural configurations. To Benedict, society was analogous, not to an organism, but to a person. Both were organized in consistent patterns of thought and feeling. (Lipset 1980, 138)

While not denying the importance of social structure, Benedict was arguing for another level of analysis, one recognizing that the ideas and values of the culture and the psychology of individuals shared patterns which were also worthy and capable of study.

Bateson took up the problem of explaining the naven ceremony by examining those "consistent patterns of thought and feeling," which he labelled "*eidos*" and "*ethos*" respectively. "Ethos" (the Greek word for character) he defined as "the expression of a culturally standardized system of organization of the instincts and emotions of the individual" (Bateson 1958, 118). Iatmul manhood, for instance, was standardized around expressions of "pride, self-assertion, harshness, and spectacular display" (Bateson 1958, 198). His definition recalls our inclusive model for character formation, whereby genetically based instincts and emotions are channelled through customs and institutions, gradually forming those habitual expressions that constitute character. The phrasing suggests, given roughly similar instinctive

and emotive capacities, that character is a function of the cultural setting; but Bateson was unwilling to assign to cultural configurations the status of an independent variable:

> Unlike Radcliffe-Brown, Bateson's causal scheme did not deduce individual behavior from social structure. Neither did it induce social structure from individual behavior. Rather, both these processes were invoked. The pervading themes of individual behavior not only resulted from processes of standardization but also effected them. He posited a circular, interdependent, bidirectional system of causation. (Lipset 1980, 142)

His refusal to take cultural configurations and social cohesion as a given and his emphasis on the psychology and behavior of individuals showed the influence of the Boas school. And his embrace of a "circular, interdependent, bidirectional system of causation" marked the beginnings of his movement away from the one-way functionalism of Radcliffe-Brown toward a "more relativized sense of function." (Lipset 1980, 147) This turn would eventually prove decisive for Bateson's thinking. Lipset (1980, 142) notes the influence of philosopher Alfred North Whitehead in Bateson's suggestion that

> A further and more compelling argument in favour of the circular . . . view of functional systems is to be found in the fact that any other view would drive us to belief either in a 'first cause' or in some sort of teleology --in fact we should have to accept some fundamental dualism in nature which is philosophically inadmissable. (Bateson 1958, 117)

Whitehead's influence on Bateson was subtle but longstanding, as he was a close friend of his father's. The metaphysics laid out in Whitehead's *Process and Reality* was a realist attempt at overcoming the

dualism of mind and matter, subject and object, inherent in so much of the philosophical tradition; and Bateson committed himself with increasing urgency to that same cause as the scientifically debilitating affects of Cartesian dualism became clearer to him in later years. The connection that Whitehead drew between circular causality and the problem of teleology (granting causal efficacy to as yet unrealized purposes -- a traditional scientific taboo) helped draw Bateson to cybernetics in his middle years. At this early stage in his thinking, however, the most striking effect of Whitehead's influence came as he struggled with the last chapter of *Naven*:

> The final climax of the book is the discovery, described in the epilogue --and achieved only a few days before the book went to press -- of what looks like a truism today: that ethos, eidos, sociology, economics, cultural structure, social structure, and all the rest of these words refer only to scientists' ways of putting the jigsaw puzzle together.
>
> These theoretical concepts have an order of objective reality. They are really descriptions of processes of knowing, adopted by scientists, but to suggest that "ethos" or "social structure" has more reality than this is to commit Whitehead's fallacy of misplaced concreteness. The trap or illusion -- like so many others -- disappears when correct logical typing is achieved. . . . People can be influenced, of course, by economic theories or economic fallacies -- or by hunger -- but they cannot possibly be influenced by "economics." "Economics" is a *class* of explanations, not itself an explanation of anything. (Bateson 1991, 50)

Years later, Bateson was still exploring the depths of this insight via the broader formulation of it in Alfred Korzybski's famous aphorism "the map is not the territory," describing the general relationship between language and the world it describes. As Bateson came to realize that there could be no bidirectional causality between social

structure and ethos because these were mere abstractions, his attention refocused on the concrete mutual causality inherent in the human interactions and, particularly, on that form of mutually reinforcing, potentially destructive interaction which he labelled "schismogenesis."

Bateson's identification and description of schismogenetic interactions would prove to be *Naven's* most lasting contribution. Schismogenesis has its basis in the mutual causality at work in any interaction between two persons: A's acts provide stimuli for B's acts which in turn become stimuli for further action on the part of A, which in turn become stimuli for B, and so on. Schismogenetic interactions occur when B's responses to A "become stimuli for *more intense action* [italics added] on the part of A and so on, A and B acting either as individuals or group members" (Bateson 1972, 109). Bateson classified such mutually reinforcing sequences into two types:

> (a) *symmetrical schismogenesis*, where the mutually promoting actions of A and B are essentially similar, e.g., in cases of competition, rivalry, and the like; and (b) *complementary schismogenesis*, where the mutually promoting actions are essentially dissimilar but mutually appropriate, e.g., in cases of dominance-submission, succoring-dependence, exhibitionism-spectatorship, and the like. (Bateson 1972, 109)

We may be most familiar with schismogeneses in the international arena, where symmetrical competition has given us arms races (checked only by finances or force) while complementary dominance/submission has led to the apotheosis of numerous petty tyrants from Lenin to Saddam

and the enslavement of their subjects. These latter schismogeneses also prove subject to certain checks.

In Iatmul society, Bateson found two pervasive forms of schismogenic interaction which could threaten the social equilibrium if left unchecked: there was a powerful current of symmetrical rivalry among the men and their clans, marked by boasts, insults, and sometimes blows over this one's or that's respective achievements in fishing, headhunting, or whatever; and there was an equally powerful tendency towards complementary interactions, towards dominance and submission in particular, between men and women (as we might expect), but also between novice boys and the older men who intitiate them into clan membership and manhood. Bateson's discovery was that the sexual role reversals of the naven ceremony provided the necessary checks on these schismogenic interactions.

The relationship of a boy (*laua*) and his mother's brother (*wau*), for example, is important among the Iatmul, as it is among many societies organized around exogamous clans. The mother's brother is typically from a clan other than the one the boy will belong to, which typically invites symmetrical rivalries. Sooner or later, the boy's behavior provokes the naven ceremony: "When *laua* boasts in the presence of *wau*, the latter has recourse to naven behavior" which is "an exaggerated caricature of a complementary sexual relationship" between them (Bateson 1991, 57). Because of the boys' age and relationship to

him, the *wau* in this way refuses the invitation to symmetrical rivalry:

> The *laua* makes the symmetrical gesture and the *wau* responds not by overbearing complementary dominance but by the reverse of this -- exaggerated submission. (Bateson 1991, 58)

The boy's uncle, in other words, gently mocks him by pretending to defer to his dominance as a wife might: *"Wau's* behavior is a caricature of submission" (Bateson 1991, 58). And that helps defuse the tensions that the suggestion of symmetrical rivalry had threatened. The naven ceremony also involves women:

> . . .while the *wau*'s transvesticism is a caricature of the female role, the transvesticism of father's sister and elder brother's wife is a proud exhibition of masculinity. It looks as though these women are stating a symmetrical rivalry vis-a-vis the men, compensating for their normally complementary role. (Bateson 1991, 58)

And so the runaway tendencies of both the symmetrical and the complementary interactions which threaten to destroy Iatmul culture are both addressed through the naven ceremony. This is an intriguing and elegant explanation -- too elegant, somehow, for as Bateson reflected later:

> . . .I made an effort to account for the presumed dynamic equilibrium of the system by pointing out that the symmetrical and complementary processes are in some sense opposites of each other so that the culture containing both of these processes might conceivably balance them one against the other. This, however, was at best an unsatisfactory explanation, since it assumed that two variables will, *by coincidence*, have equal and opposite values; but it is obviously improbable that the two processes will balance each

> other unless some functional relationship obtains between them. In the so-called dynamic equilibrium of chemical reactions, the rate of change in one direction is a function of the concentration of the products of the inverse change, and reciprocally. But I was not able to see any such functional dependence between the two schismogenic processes and had to leave the matter there when the book was written. (Bateson 1991, 55)

This problem aside, Bateson's schismogeneses, with their circular causality, mutual reinforcement, and necessary governing factors, found an appreciative audience among a small group of mathematicians and engineers who were drawing together the basis for what would become known as cybernetics. This led to Bateson's invitation to attend the so-called Macy Foundation Conferences, held annually or biannually from 1942 to 1953. Bateson recalled later that "membership in those conferences, with Norbert Wiener, John Von Neumann, [Warren] McCulloch and the rest, was one of the great events of my life" (Lipset 1980, 180).

The Macy Conferences were organized in response to the growing interest among researchers from a number of different fields in self-regulatory mechanisms. Some of the interest had developed through mathematician Norbert Wiener's work on guided missile systems in World War II; some, like the neurophysiologistWarren McCulloch and physiologists Arturo Rosenbluth and Lorente de No, shared "an interest in the physiological mechanism underlying the phenomena of conditioned reflex" (Lipset 1980, 179); others, like Julian Bigelow and Johnny Von

Neumann -- "a child prodigy of mathematics, 'Johnny' to the end of his life," in the words of Jacob Bronowski (Bronowski 1973, 432) -- came to the conferences out of their growing fascination with computers. They were galvanized by a short paper written by Rosenblueth, Wiener, and Bigelow called "Behavior, Purpose, and Teleology," announcing

> . . .their consensus that mutual communication of *error* between the ideal and the actual, called "feedback," was pivotal to the theoretical understanding of all voluntary or purposeful behavior. (Lipset 1980, 178)

Over the course of 12 years, these conferences induced some of the finest minds of the time to return again and again to the issues introduced in that paper:

> Except for the second conference, called Teleological Mechanisms and Circular Causal Systems, all the rest retained the name of the original meeting, Feedback Mechanisms and Circular Causal Systems in Biological and Social Systems. (Lipset 1980, 180)

The application of cybernetic concepts to the life sciences drew the intense interest of Bateson, as well as Margaret Mead and psychologists Lawrence Frank and Lawrence Kubie. The relevance of these new conceptual tools to the social sciences may not have been immediately obvious to all, but it was fundamental. A little background may be helpful here; fortunately, Bateson has some stock presentations we can borrow:

> The ideas themselves are extremely simple. All that is required is that we ask not about the characteristics of lineal chains of cause and effect but about the characteristics of systems in which the chains of cause and effect are circular or more complex than circular . . ..

> Such circular causal systems must in the nature of the case either seek a steady state or undergo progressive exponential change; and this change will be limited either by the energy resources of the system, or by some external restraint, or by a breakdown of the system as such.
>
> The steam engine with the governor illustrates the type of circuit which may seek a steady state. Here the circuit is so constructed that the faster the piston moves the faster the governor spins; and the faster the governor spins the wider the divergence of its weighted arms; and the wider the divergences of these arms the *less* the power supply. But this in turn affects the activity of the piston. The self-corrective characteristic of the circuit as a whole depends upon there being within the circuit at least one link such that the more there is of something, the less there will be of something else . . ..
>
> In contrast, a steam engine with a governor so constructed that a wider divergence of the arms of the governor will *increase* the supply of steam to the cylinder affords an instance of what the engineers would call "runaway." The feedback is "positive" and the system will operate faster and faster. (Bateson 1991, 56)

The presence of a negative feedback loop gives the system as a whole the appearance of purpose. Keeping the supply of steam within certain parameters keeps the arms from spinning too fast or too slow, which is the purpose of the governor -- or rather, our purpose in designing it that way. It could be argued that every element in a machine is there for a purpose, but what we have here is an element which serves to keep the entire mechanism working toward its purposed end. It is like a built-in intelligence, adjusting the system as needed to achieve its goal.

The discovery that mechanical systems can be designed to emulate goal directed behavior provided a potentially powerful insight into the debate over whether living systems can ever be described in wholly

biochemical terms. With the discovery of cybernetics, it seemed thatperhaps they could. And if the teleology of organisms might be described in wholly physico-chemical terms, might human intelligence and even social sytems be similarly subject to cybernetic redescription and hard scientific analysis? These are the sorts of questions the Macy Conferences keyed in on.

The cybernetic circuit assumes a social form in the basic interaction we described before, where A's acts are stimuli for B's acts which in turn become stimuli for more action on the part of A, and so on. What Bateson called "schismogenesis" is essentially a form of positive feedback. By mapping his own key notions onto the fundamentals of cybernetics, Bateson was suddenly given access to a body of theory that enabled him to extend his ideas in whole new ways.

In *Naven*, Bateson had struggled to understand how the powerful schismogeneses pervading Iatmul society had been held in check. While he was convinced the naven ceremony was part of the answer, it seemed improbable that it could just pop up whenever and to whatever extent was necessary to maintain equilibrium. The notion of feedback now gave him a new way of looking at the problem:

> It was not good enough to say that symmetrical schismogenesis happened by coincidence to balance the complementary. It was now necessary to ask, is there a communicational pathway such that an increase in symmetrical schismogenesis will bring about an increase in the corrective complementary phenomena? Could the system be circular and self-corrective? (Bateson 1991, 57)

He decided, of course, that it was. As we saw before, "the complementary sexual relationship between wau and laua, is in fact set off by overweening symmetrical behavior" (Bateson 1991, 57). Bateson thought it significant that the women make their transvestite statement of symmetrical rivalry with men "at a time when a man, the wau, is stating his complementarity vis-a-vis laua" (Bateson 1991, 57). Armed with this insight, he was able to identify a number of other examples where the governing behavior arises not by coincidence but in more or less direct response to schismogenic excess.

Not surprisingly, according to his biographer, David Lipset:

> " . . .[T]he new theoretical framework was intoxicating to Bateson and came to dominate his scientific imagination . . . Now at the age of 42, he had a new set of conceptual tools and a new task, which was to glean what he could from them . . .(Lipset 1980, 182-3)

Bateson claimed it was the beginning "of a general theory of process and change, of adaptation and pathology":

> [I]n terms of the general theory, we have to re-examine all that we thought we knew about organisms, societies, families, personal relation-ships, ecological systems, servomechanisms, and the like (Bateson 1958, Preface).

The "new set of conceptual tools" were clearly laid out at the Macy conference Bateson organized to introduce social scientists to Von Neumann and Wiener in 1946. The two mathematicians provided a rich summary,

> . . .differentiating between "analogical" and "digital" coding, discussing circuits, servomechanisms, positive and negative feedback, the measurement of information and its relation to the idea of entropy, binary systems, Von Neumann's theory of games, Bertrand Russell's theory of logical types, "pathological" oscillations (yes-no-yes-no-yes, etc.) in a computer confronted by a Russellian paradox, and the notion that communication systems depend upon "information" and not "energy." (Lipset 1980, 180)

For our purposes (as well as Bateson's), the most critical new tool in Wiener's and Von Neumann's cybernetic catalog was Russell's (and Whitehead's) theory of logical types. This was, in effect, an extension of Whitehead's fallacy of misplaced concreteness, applying the logical distinction between concrete and abstract to different categories or levels of abstraction. Bateson described the theory this way:

> Russell's central notion is the truism that a class cannot be a member of itself. The class of elephants has not got a trunk and is not an elephant. This truism must evidently apply with equal force when the members of the class are not things but names or signals. The class of commands is not itself a command and cannot tell you what to do.
>
> Corresponding to this hierarchy of names, classes, and classes of classes, there is also a hierarchy of propositions and messages, and within this latter hierarchy the Russellian discontinuity must also obtain. We speak of messages, metamessages, and meta-metamessages, and what I have called deutero-learning I might appropriately have called metalearning. (Bateson, 1991, 60)

There were two critical insights for Bateson here. The first had to do with the way this theory was applied to cybernetic circuits. Consider that other standard example of a homeostatic system, the thermostat:

> A house with a thermostatically controlled heating system is a simple self-corrective circuit of the sort discussed above. A thermometer appropria-tely placed in the house is linked into the system to control a switch in such a way that when the temperature goes above a certain critical level the furnace is switched off. Similarly, when the temperature falls below a certain level the furnace is switched on. But the system is also governed by another circumstance, namely, the setting of the critical temperatures. By changing the position of a dial, the owner of the house can alter the characteristics of the *system as a whole* by changing the critical tempera-tures at which the furnace will be turned on and shut off. Following Ashby, I will reserve the word "variables" for those measurable circumstances which change from moment to moment as the house oscillates around some steady temperature, and shall reserve the word "parameters" for those characteristics of the system which are changed for example when the householder intervenes and changes the setting of the thermostat. I shall speak of the latter change as of a higher order than changes in the variables. (Bateson 1991, 60)

For "higher order" we can read "higher logical type." What Russell's and Whitehead's theory provided was an essential logical and mathematical tool for the cybernetic explanation of hierarchical systems. Bateson was almost certainly correct in suggesting that "the discoverers only half knew the monstrous power, the wide significance, of their discovery" (Bateson 1991, 154). And he could have been describing his own role as he went on to observe that:

> It sometimes seems as if every great breakthrough in science is only the discovery of the wider relevance of something said many years before. Whitehead and Russell seem to have seen their work concerning the foundations of mathematics as an abstruse and abstract matter, not as something fundamental to all human interaction and all evolutionary process. (Bateson 1991, 154)

This insight into the nature of hierarchy in complex systems helped Bateson unravel the puzzling improbability confronting his explanation of the naven ceremony. He now realized that the symmetrical rivalries

he had witnessed among the Iatmul operated only within the parameters set by the complementary schismogenesis of dominance/submission -- and vice versa. They were both part of a larger circuit, a system of behavior in which these schismogeneses served only as subsystems. It was this larger circuit that was self-correcting.

The theory of logical types not only helped tie up the loose ends from his prior research, it spun new threads in all directions. A second fundamental insight provided by the theory concerned the nature of learning. What Bateson now realized was that the "meta" relationship held there, too. As "meta-messages" refer to messages about messages, metalearning refers to learning about learning - not to propositions about learning but, rather, to the process of learning how to learn. Bateson's term "deutero-learning" defines this notion more precisely in terms of the commonplace lab phenomenon "that the experimental subject -- whether animal or man, becomes a better subject after repeated experiments" (Bateson 1972, 166):

> Let us say that there are two sorts of gradient discernible in all continued learning. The gradient at any point on a simple learning curve (e.g., a curve of rote learning) we will say chiefly represents rate of proto-learning. If, however, we inflict a series of similar learning experiments on the same subject, we shall find that in each successive experiment the subject has a somewhat steeper proto-learning gradient. This progressive change in the rate of proto-learning we will call "deutero-learning." (Bateson 1972, 167)

Through being subjected to a "series of similar learning experiments," the lab rat learns to anticipate the experimenter's

game. He begins to understand at some level "what's going on," to guess, for instance, that this is a game he can win -- that exploration on his part may lead to reward. Deutero-learning is of a higher logical type than proto-learning because it represents learning about the contexts of action, about the sets of alternatives to be chosen from in any given situation. It is like learning to set a thermostat. And it shapes the way the rat sees the world:

> I assume that in any learning experiment -- e.g., of the Pavlovian or the Instrumental Reward Type -- there occurs not only that learning in which the experimenter is usually interested, namely, the increased frequency of the conditioned response in the experimental context, but also a more abstract or higher order of learning, in which the experimental subject improves his ability to deal with contexts of a given type. The subject comes to act more and more as if contexts of this type were expectable in the universe. (Bateson 1991, 54)

> A rat whose development was shaped by a series of Pavlovian contexts (where rewards come after a buzzer or other unconditioned stimulus, regardless of what he does) would come to expect a world in which his actions had little effect. Rather than developing his skills as a maze explorer, he would likely become a more passive creature.

And this phenomenon is limited neither to labs nor lab animals. This same sort of metalearning provides the basis for various forms of psychotherapy:

> Now all those psychiatric theories which invoke the past experience of the individual as an explanatory device depend necessarily upon some such theory of high-order learning, or learning to learn. When the patient tells the therapist that, in her childhood, she learned to operate a typewriter, this is of no particular interest to him unless he happens to be a vocational counselor as well as a therapist. But when she starts to tell him about the context in

> which she learned this skill, how her aunt taught her and rewarded her or punished her or withheld reward and punishment, then the psychiatrist begins to be interested; because what the patient learns from formal characteristics or *patterns* of the contexts of learning is the clue to her present habits, her "character," her manner of interpreting and participating in the interaction between herself and others. (Bateson 1991, 54)

Indeed, the development of character is for Bateson a form of deutero or meta-learning. Our retracing of Bateson's steps has finally brought us to the point where we can begin to describe his general understanding of character and its development.

In *Mind and Nature*, Bateson distills his theory of character formation to a nearly mathematical precision. He tells us that

> " . . .the unit of *interaction* and the unit of *characterological learning* (not just acquiring the so-called "response" when the buzzer sounds, but the *becoming ready for such automatisms*) are the same." (Bateson 1979, 132)

The density of Bateson's expression here almost entirely obscures the thought behind it, so we need to take some time with his definitions. Bateson defines character as "the system of interpretations which we place on the contexts we encounter" (Bateson 1979, 115), and "characterological learning" he defines as "learning the contexts of life" (Bateson 1979, 132). At the heart of both definitions is the notion of "context" which, through its connection to the theory of logical types, is basic to Bateson's thinking. By

"contexts of life" he means the ways we classify the various life situations we find ourselves in: Is this play - or for real? Is this love - or conquest? Does this situation call for moral choice - or pragmatic calculation? Is this even a situation I can influence at all? These questions all concern the context of our actions. Our choice of action depends on our identifying which sets of alternatives we can choose from. We have to frame the situation, identify the context, understand our parameters. Bateson is suggesting that the contexts we are able to recognize, and the markers by which we recognize them, define our character.

For example, Bateson contrasts the fatalist, who sees "all events as preordained" and himself as "not able to influence the course of events," with the "instrumentalist," the pragmatist, who typically views situations in terms of causes and effects with outcomes subject to his manipulation (Bateson 1972, 173). The two live in quite different worlds: their attention, even within the same setting, is directed towards different things, and their responses within that setting differ even more. An interpretation may hang on a very quick reading, in which a single element, a context marker, may prove decisive. An example of a context marker is the act of bolting by which the zebra "may identify (for the lion) the nature of the context in which they meet . . . [so that] even the well-fed lion may give chase" (Bateson 1979, 115).

This is a profound reworking of the notion of character, but a plausible one I think. The implications of it become clearer when we examine the other side of his formulation. Bateson's "unit of interaction" is simply an "external relationship between two creatures" (Bateson 1979, 132). This is the social form of the cybernetic circuit we examined earlier -- what sociologists call a "double interact." Of course, there are many different sorts of relationships creatures can engage in over time, depending on the situations they find themselves in. Bateson defines relationships as "patterns of interchange" (Bateson 1979, 133), emphasizing recurring sequences of behavior between individuals rather than something internal to either one of them (Bateson 1979, 132-3). That relationships are of this nature seems evident, but in fact we often describe relationships like fatherhood as if they were roles describable entirely in terms of the rights and expectations of one party. Bateson would have us redescribe fatherhood in bipolar terms as a father-child relationship, and insist that we define it in terms of the patterns of interchange between the two parties. "Relationship," Bateson insists, "is always a product of double description" (Bateson 1979, 133).

Though we don't usually think of character traits in relational terms, Bateson urges that we redescribe these in bipolar terms as well. He suggests, for instance, that pride is best understood as "conditional admiration provided by spectator, *plus* response by performer, *plus* more admiration, *plus* acceptance of admiration ..

(Cut the sequence where you will!)" (Bateson 1979, 134). In a similar manner, dominance is redescribed as "dominance-submission", nurturing as "nurturing-dependence", and so on. It is easy to see how schismogenic interactions can be powerful formative influences on character.

In arguing that the unit of interaction is the unit of characterological learning, Bateson is arguing that our relationships with others constitute our learnings about the contexts of life which, in turn, constitute our character -our longterm dispositions and traits. An exerpt from one of Bateson's more expansive lectures on the subject may make the point clearer:

> Now I want you to notice these words like "dependency," "dominance," "spectatorship," "suffering," "passive-aggressive" -- and a number of other descriptive terms that [psychiatrists] habitually use about individuals. If you really want to say what you mean by them -- which I think most psychiatrists don't really want to do -- you will find that you have to spell out the *contexts of interchange* between persons in order to define their meaning. . . . There is a regularity in their external behavior vis-a-vis other persons, involving the behavior of other persons -- because if other persons don't play, it doesn't work out right. This is actually what we mean by these "psychological words." For example, we say "What do you mean by 'fatalism'?" Now the easy way to answer that question is to say, "I mean the sort of thing that an organism would learn, would acquire, if he were subjected to learning contexts of a certain kind." That is, if he were subjected, let us say, to Pavlovian contexts, where we have a conditioned stimulus, a response, and an unconditioned stimulus -- i.e., a buzzer, salivation, and meat powder . . .
>
> Now if you learn that your universe is made up of strings of that kind, so to speak, you would then become a Pavlovian dog, and you would expect the universe to be made up of strings of that kind; and that universe is one in which you can't do anything to make things happen . . . In a certain sense, you would be a fatalist.

> (There are other sorts of fatalism, of course.) This gives you a way of making a fairly precise form of words for what you mean by something like "fatalism"; equally, "dependency," "dominance," "suffering," etc. (Bateson 1991, 168)

This interactional "form of words" or pattern of definition for character traits stands in clear contrast to our usual manner of defining character in terms of dispositions or predispositions developed within each person's mind. As an anthropological epistemologist, one who studied how people actually learn, Bateson was convinced that learning began with social relationships and developed thereafter wholly within the contexts of life, the experiential frames, learned through those relationships:

> *Learning the contexts of life* is a matter that has to be discussed, not internally, but as a matter of the external relationship between two creatures. And relationship is always a product of double description . . .
>
> Relationship is not internal to the single person. It is nonsense, for example, to talk about dependency or aggressiveness or pride as if these were internal to single persons. All these words have their roots in what happens between persons, not in something or other inside a person . . . (Bateson 1979, 132-3)

Bateson rejected explanation in terms of dispositions because such explanations grant causal agency to what is, in fact, a theoretical construction -- meaning they suffer from the fallacy of misplaced concreteness. He called this type of explanation a "dormitive hypothesis," borrowing the notion from Moliere. In *Le Malade Imaginaire*, Moliere depicts an oral doctoral examination:

> [T]he learned doctors ask the candidate to state the "cause and reason" why opium puts people to sleep. The candidate triumphantly

> answers in dog Latin, "Because there is in it a dormitive principle (*virtus dormitiva*).
>
> Characteristically, the scientist confronts a complex interactive system -- in this case, an interaction between man and opium. He observes a change in the system -- the man falls asleep. The scientist then explains the change by giving a name to a fictitious "cause," located either in one or the other component of the interacting system. Either the opium contains a reified dormitive principle or the man contains a reified need for sleep . . .
>
> And, characteristically, all such hypotheses are "dormitive" in the sense that they put to sleep the "critical faculty" (another reified fictitious cause) within the scientist himself. (Bateson 1972, xx)

Reified principles, causes, and needs all involve the fallacy of misplaced concreteness. Dormitive hypotheses are, in fact, distressingly common: Bateson suggests that "about three-quarters of all the hypotheses in the behavioral sciences are fundamentally dormitive principles" (Bateson 1979, 170). The nature of these internal agencies, be they instincts, dispositions, motivations, or whatever, is typically not explained:

> For the sake of politeness, I call these 'heuristic' concepts; but, in truth, most of them are so loosely derived and so mutually irrelevant that they mix together to make a sort of conceptual fog which does much to delay the progress of science. (Bateson 1972, xviii)

The interactional form of words was Bateson's remedy for this affliction:

> Only if you hold on tight to the primacy and priority of relationship can you avoid dormitive explanations. The opium does not contain a dormitive principle, and the man does not contain an aggressive instinct.

> . . .[You] will get nowhere by explaining prideful behavior, for example, by referring to an individual's "pride". Nor can you explain aggressive behavior by referring to instinctive (or even learned) "aggressiveness". Such an explanation which shifts attention from the interpersonal field to a factitious inner tendency, principle, instinct, or whatnot, is, I suggest, very great nonsense which only hides the real questions . . .. The same is true of "dependency," "courage," "passive-aggressive behavior," "fatalism," and the like. *All* characterological adjectives are to be reduced or expanded to derive their definitions from patterns of interchange. (Bateson 1979, 133)

These are very broad and sweeping claims, with implications for philosophy as well as psychology. While "dependency" and "passive-aggressive behavior" are closely associated with the field of psychology, "courage" has long been a subject of philosophical speculation and "fatalism", if not a philosophy, denotes at least a basic philosophical attitude. Bateson is stepping on many toes here. As if these weren't enough, in a footnote to the discussion of "aggressiveness" quoted above Bateson rather curiously adds the sociobiologists to his list of potentially footsore readers. He bids us:

> "Note, in passing, how easy is the descent from sociobiology to paranoia and, perhaps, how easy is the descent from violent repudiation of sociobiology to paranoia - alas." (Bateson 1979, 133)

Typically elliptical, Bateson here lapses into the cryptic; but he may well be making an oblique criticism of ethologist/sociobiologist Konrad Lorenz' famous work *On Aggression*. Where Lorenz ascribed much of man's ill-fated history to an inability to channel his aggressive instincts in civilized ways, Bateson declares: " . . .the man does not

contain an aggressive instinct" (Bateson 1979, 133). That's a strong statement from someone with Bateson's background in evolutionary biology.

Consider, however, how little the notion of instinct adds to the explanation of aggressive behavior. It suggests that humans are born with a capacity for aggression regardless of their enculturation, which is doubtless true; but ascribing that capacity to instinct tells us nothing more than that -- nothing about the genetic mechanisms presumably underlying it, nothing about how aggressive behavior is triggered or possibly modified by chemical treatments. Instinct no more explains aggressive behavior than gravity explains falling objects. It merely puts a name onto an otherwise unexplained process. Worse, by reifying the cause of aggressive behavior onto an internal agency, it obscures the fact that aggression is situational, arising in response to cues from the environment. Humans don't pursue aggression for its own sake, but as a response within contexts of competition, dominance/submission, and the like. In this case, certainly, Bateson was right in suggesting that such "factitious inner tendencies . . . only hide the real questions."

While Bateson's approach is clearly original and interesting, is there any reason to consider it beyond his claims about the

inadequacies of competing models? The idea that character represents learning of a higher contextual level than factual knowledge or "know-how" does have some interesting, supporting implications.

An important one is that higher-level contextual learning tends to be self-validating, even in the face of new and apparently conflicting experiences. We act according to our perception of the situation, whatever happens. An undesirable outcome indicates only that another course of action might have fared better, not that we misperceived the situation to begin with. A series of undesirable outcomes might lead us to reconsider our interpretation, but it often does not. In fact, as our experience confirms:

> . . .there is a very profound difference between a serious attempt to change the characterological state of an organism and trying to change that organism's particular actions. The latter is relatively easy; the former, profoundly difficult. (Bateson 1979, 124)

This helps explain another phenomenon of the psych-lab, one that the standard dispositional models find difficult to explain:

> It seems to puzzle psychologists that the exploring tendencies of a rat cannot be simply extinguished by having the rat encounter boxes containing small electric shocks. From such experiences, the rat will not learn not to put his nose into boxes; he will only learn not to put his nose into the particular boxes that contained electric shocks when he investigated them. In other words, we are here up against a contrast between learning about the particular and learning about the general. (Bateson 1979, 124)

This is not a phenomenon confined to labs and lower mammals, of course. Human society's rats -- its criminals -- are just as unlikely

to be reformed by legal punishments (just as penologists are unlikely to reform their approach because of the failure of punishment to reform):

> We act as if crime could be extinguished by punishing parts of what we regard as criminal actions, as if "crime" were the name of a sort of action or of part of a sort of action. More correctly "crime," like "explora-tion," is the name of a way of organizing actions. It is therefore unlikely that punishing the act will extinguish the crime. In several thousand years, the so-called science of criminology has not escaped from a simple blunder in logical typing. (Bateson 1979, 124)

We may safely conclude that, for Bateson, the persistence with which some people pursue achievement, despite setbacks and hardships, is likewise a matter of the self-validating nature of contextual, characterological learning. Each failure becomes a lesson only in what not to do; each hardship simply something to test one's mettle. While we don't yet know why people pursue achievement, we now have an idea, at least, of why they stick with it.

The theory of logical types thus provides the framework on which Bateson's concept of characterological learning is based, and our experience of the constancy of characterological traits supports the validity of that approach. His more general thesis concerning the hierarchical nature of learning (the idea of meta levels in learning) also seems to square with laboratory data. However, the claim that all characterological adjectives must be redefined in terms of relationships, while it has the virtue of avoiding dormitive hypotheses, seems harder to corroborate.

Bateson himself tended to rail against the "inner tendency" model rather than support his own approach. His conviction that relationships define character seems to rest on two sorts of evidence. The first is inductive: the several schismogeneses that Bateson first identified along the Sepik and returned to repeatedly in later years -- dominance/submission, exhibition/spectatorship, nurturance/dependence, and competition -- all comprise characterological adjectives, and all need to be understood in relational terms. We speak of domineering or submissive sorts of people, for instance, as though they were opposing character types; but logically the two go hand in hand. If one is to dominate, another must submit. Moreover, there is every reason to suppose the two sides to inhere in the character of each person in the relationship: it is often said that the best leader knows how to obey, and in any dominance hierarchy those in the middle must be adept at both roles. In symmetrical schismogeneses like competition, similarly, it takes two to compete.

What is evidently learned in each case is a context for a certain sort of relationship, and the anticipation that future relationships will be of this same sort would certainly seem to define one's character to some degree. While the schismogeneses thus support the notion that relationships define character, it seems a leap to conclude that all character traits must be defined this way. We may recognize some people as achievement oriented, to take a relevant example, without finding it immediately evident that some relationship is

involved. If, through this study, it turns out that achieving behavior is rooted in a context of relationships, that might lend some further credence to Bateson's claim.

Bateson would certainly agree that his inductive evidence was incomplete as well as inconclusive. Inductive evidence, of course, is never conclusive. But Bateson was unusually content, for one of his scientific background, with fragmentary inductive evidence. Margaret Mead is purported to have said that Bateson's talent was for

> the extraordinary broad concepts and . . .[the] minor little . . . details. But the middle ground he's not so good at . . . One of the reasons it is hard to grasp the connections . . .[Gregory makes is] because he jumps the middle. He goes to the extraordinarily broad from very small observations. (Lipset 1980, 227)

Bateson himself recognized that he differed from many of his fellow behavioral scientists in that he relied as much or more on deduction as on induction in arriving at his positions. At one point, he recalls his difficulties in communicating with his students in pyschiatry:

> . . . [I]t became clear that a difference between my habits of thought and those of my students sprang from the fact that they were trained to think and argue *inductively* from data to hypotheses but never to test hypotheses against knowledge derived by *deduction* from the fundamentals of science or philosophy. (Bateson 1972, xviii)

This is a key point. The second sort of evidence that Bateson would adduce for his prescription that characterological adjectives be redefined in terms of relationships would be deductive. Obviously, his position should follow from the premises of what we might generously

call his "implicit" theory of mind; but just as obviously, that sort of support would be circular and suspect. That's not the sort of deductive support Bateson had in mind, however. For deductive support, his appeal was rather to those "fundamentals of science or philosophy" mentioned above.

By "fundamentals of science or philosophy," Bateson meant "propositions and systems of propositions which are truistical, and propositions or 'laws' which are generally true" (Bateson 1972, xix). The first set of propositions would include the tautologies of logic and mathematics, the second "the conservation 'laws' for mass and energy, the Second Law of Thermodynamics, and so on" (Bateson 1972, xix). For Bateson, "*Explanation*" is simply "the mapping of data onto fundamentals" (Bateson 1972, xix).

The problem, of course, is in trying to identify what the "fundamentals" of behavioral science might be. Bateson, surveying the contemporary scene in the behavioral sciences, found little that fit this description:

> It is all too clear that the vast majority of the concepts of contemporary psychology, psychiatry, anthropology, sociology, and economics are totally detached from the network of scientific fundamentals. (Bateson 1972, xix)

While it is generally conceded that the theoretical foundations of the behavioral sciences are less secure than those of the physical sciences, is it reasonable to expect some sociological equivalent of

the conservation laws of matter and energy? I'm sure it is not, but in fact Bateson was not looking to ground the behavioral sciences on general laws like those of physics. What attracted him to fields like cybernetics, game theory, and information theory was their basis in mathematics -- the eternal verities of tautology.

Tautology rightfully carries connotations of emptiness. "If *P* is true, then *P* is true" certainly doesn't convey much information. But Bateson argues that

> . . .the line between tautological truths and empirical generalizations is not sharply definable, and, among my "fundamentals," there are many propositions whose truth no sensible man can doubt but which cannot easily be classified as either empirical or tautological. The "laws" of probability cannot be stated so as to be understood and not be believed, but it is not easy to decide whether they are empirical or tautological; and this is also true of Shannon's theorems in Information Theory. (Bateson 1972, xix)

On the other hand, no one argues that the "laws" of probability or Shannon's theorems[1] were arrived at inductively. I think it's fair to say that Bateson's call for redefinition of characterological

[1] Claude Shannon's famous second theorem for information theory, for instance, "guarantees that information can be transmitted over a noisy channel at the fastest rate permitted by the capacity of the channel, and still contain as few errors as we wish." (Campbell 1982, 80) This is the basis for satellite communications, the recent verification of big bang theory, and numerous other, more mundane applications. While the theory was arrived at mathematically, it is considered as true for real world communications as Newton's Laws of Motion are for the physical world.

adjectives in relational terms was not arrived at wholly by induction, either. As he says in his Introduction to *Steps* . . .:

> . . .this collection of essays is very much concerned with trying to communicate this thesis -- that in scientific research you start from *two* beginnings, each of which has its own kind of authority: the observations cannot be denied, and the fundamentals must be fitted. You much achieve a sort of pincers maneuver. (Bateson 1972, xx-xxi)

The relational definition of characterological adjectives could be seen to follow from the premisses of cybernetics, inasmuch as the elements of any self-regulating system are defined by their relationships to the other elements. Bateson would be arguing, in effect, that the characteristic traits of individuals are defined within their system of social relations. The question is whether mapping descriptions of character traits onto the tautologies of cybernetics and other mathematically based sciences can be done successfully enough to qualify as a satisfying explanation. My intention here is to make that attempt with the trait of achievement orientation. If successful, we will have shed light both on achievers and, hopefully, on the status of Bateson's own achievement.

CHAPTER 3

DESIGN AND SIGNIFICANCE OF THIS STUDY

Design

Bateson's emphasis on deduction and on formal mathematical systems in the behavioral sciences goes to the heart of the purported paradigm shift we spoke of in the beginning. It is no accident that he makes so little reference to seminal figures or leading contemporaries in the behavioral sciences while so often citing his considerable debts to philosophers and mathematicians like Bertrand Russell, Alfred North Whitehead, Alfred Korzybski, Norbert Wiener, Johnny Von Neumann, and Claude Shannon. Bateson was convinced that the behavioral sciences, arising in the shadow of Newton's dazzling achievement in physics, had simply gotten off on the wrong foot:

> The nineteenth-century scientists (notably Freud) who tried to establish a bridge between behavioral data and the fundamentals of physical and chemical science were, surely, correct in insisting upon the need for such a bridge but, I believe, wrong in choosing 'energy' as the foundation for that bridge. (Bateson, 1972, xxii)

The choice of "energy" as the bridge to fundamental scientific laws was prompted, Bateson suggests, by analogy with "already existing metaphors such as 'strength' of emotions or character, or 'vigor'"; or

by thinking of "'energy' as somehow the opposite of 'fatigue' or 'apathy'" (Bateson 1972, xxii). The metaphor of energy still echoes in the notions of "impulse," "libidinous energies," "sex drives," and "force of habit" as well as in the pervasive emphasis among behavioral scientists on quantitative measurements. Bateson is clearly digging for the roots of the problem in this critique, and he is convinced that the problem goes deeper than metaphors, that it lies in the very soil in which the metaphor of energy takes root:

> . . .my critical comments above about the metaphoric use of 'energy' in the behavioral sciences add up to a rather simple accusation of many of my colleagues, that they have tried to build the bridge to the *wrong half* of the ancient dichotomy between form and substance. The conservative laws for energy and matter concern substance rather than form. But mental process, ideas, communication, organization, differentiation, pattern, and so on, are matters of form rather than substance. (Bateson 1972, xxv)

A more fundamental shift in the grounding of behavioral science would be hard to imagine. Though we've already laid out in rough form the new foundation that Bateson was proposing, the relationship between his new paradigm and the standing one needs to be worked out in considerably greater detail if we are to assess what difference he hoped it would make.

Because the shift is so fundamental, I think there is no choice for us but to return to its source, what Bateson calls "the ancient dichotomy between form and substance":

> It all starts, I suppose, with the Pythagoreans versus their precedessors, and the argument took the shape of "Do you ask what it's made of -- earth, fire, water, etc.?" Or do you ask, "What is its *pattern*?" Pythagoras stood for inquiry into pattern rather than inquiry into *substance*. (Bateson 1972, 449)

That is certainly a long reach, but in truth the roots of the modern scientific paradigm extend that far. The attempt to explain man's pursuit of achievement also goes back that far (at least), and the oldest theories still extant on how character is shaped come to us from the Hellenic world as well. So that is where this study will begin.

Were this a purely scientific study of the causes of achievement orientation, we would proceed to the lab or the field with our methodology in hand to pursue "original" research. Our concern being with the nature of explanation in the behavioral sciences, however, our study is philosophical and our method analytic rather than empirical. The source of our data will be the history of philosophical speculation, beginning with the Greeks, on the formation of character, the pursuit of achievement, and the kind of explanation that is properly brought to bear on such questions.

In other words, rather than using the standard "review of the literature" to provide the background for our research, it will be the focus of it. The tools of Bateson's formal science will then provide the analysis. I begin with a few presumptions, which will either be

borne out or not. One is that the finest minds of our Western world have left us insights on the pursuit of achievement which bear some share of truth. Who would know better? A second is that their explanations of that pursuit are shaped by the reigning scientific paradigms of their time, that the two "fit" together much as Bateson suggested (" . . .the observations cannot be denied, and the fundamentals must be fitted"). The third is that, if Bateson's new set of fundamentals provide a better fit, then we will have managed to provide both a more satisfactory explanation for achievement and evidence of the power of his formal paradigm. The pincers movement will have proven successful.

Significance

While it is far from certain that a life of achievement - even intellectual achievement - correlates closely with youthful success in academic studies, the fact is that much of the modern psychological research on what motivates people to achieve has been pursued with hopes of enhancing children's performance on tests in school. For the sake of clarity, it should be noted that the term "achievement" is often used euphemistically in educational contexts to refer to what a child should know or be able to do, given his or her potential. Parents want to know whether their children are "over-achievers" or "under-achievers" as revealed through "achievement tests" which, at

best, only measure how much information a child has retained in a given subject. These uses of the term "achievement" have little to do with the sorts of accomplishment pursued by so-called "super-achievers" -- like Gregory Bateson. What we are trying to understand by way of "achievement" here would be better defined (as Random House does in its second, unabridged Dictionary of the English Language) as "1. something accomplished, esp. by superior ability, special effort, great courage, etc.; a great or heroic deed . . ." (Random House Dictionary 1987, 15)

However, there does exist a body of research concerned with the tendency of some children to push themselves to meet challenges and to outperform their peers. What these researchers, building on David McClelland's original work in the 1950's, are trying to comprehend under the rubric of "achievement motivation," or "n-Ach," seems close to the problem posed here. In its original formulation, achievement motivation was viewed as a long-term need or disposition with roots in childhood socialization.

Since any long-term disposition or motivation would qualify for Bateson's list of "factitious inner tendencies" with roots in the ill-fated metaphor of energy, we can assume that he would reject "achievement motivation" out of hand. Our analysis will trace that argument in some detail. For now, note only that a different kind of explanation for a lifetime of achievement, along the lines Bateson

suggests, would clearly have major theoretical implications for the entire body of research on achievement motivation.

The practical implications, on the other hand, might even be more significant, inasmuch as the research on achievement motivation has attempted to identify those factors in a child's socialization which correlate with a life of achievement. If we allow that a positive orientation towards achievement is good for our children and society, then there is the possibility that identifying the contributing factors may help us somehow to promote that orientation. If Bateson's approach is truly to make a difference, then it should help us identify different or additional contributing factors, or at least give us a clearer understanding of how those factors already identified contribute to that cause. If that proves not to be the case, then Bateson's alternative model of explanation begins to look suspiciously like a distinction without a difference, and his prescriptions may be considered philosophical at best.

CHAPTER 4

THE LITERATURE

Building a New Bridgehead to the Old Dichotomy

Though it may seem overreaching to begin this review with the ancient Greeks, our philosophical interest in explanatory models and in understanding achievement would be ill-served by overlooking them. As Bateson warns:

> The would-be behavioral scientist who knows nothing of the basic structure of science and nothing of the 3000 years of careful philosophic and humanistic thought about man - who cannot define either entropy or a sacrament - had better hold his peace rather than add to the existing jungle of half-baked hypotheses. (Bateson 1972, xxi)

We certainly wouldn't want to be accused of that. Moreover, Bateson suggests that "in the search for a bridgehead among the fundamentals we should go back to the very beginnings of scientific and philosophic thought" (Bateson 1972, xxii). It is with the Greeks that the "ancient dichotomy between form and substance" has its origins. It is also with the Greeks that we find the first sustained investigations of character and how "great souls" (*megalopsyche*) may be fostered. What I propose is that we examine the Greek explanation of achievement both for its own contribution to the question before us and for the

insight it may provide on the origins of the ancient dichotomy and on Bateson's suggestion that we try to rebuild the bridge to the formal side.

The Greek *Arete*

Though we owe so much of our intellectual heritage to the Greeks, comparisons to modern concerns over a gap of 2500 years must be drawn with caution. With all due respect to Bateson, for instance, the "ancient dichotomy" for the Greeks was between form and matter, not form and substance which are nearly synonomous in Aristotle. It wasn't till the rise of Renaissance science that "substance" acquired its current, dichotomous connotations. Fortunately, the philosophical discussion of these terms is not only extensive but nearly continuous over the millenia that separate us, and definitions are essential to it, so these comparisons can be drawn with some confidence. We are not so fortunate when it comes to the consideration of character and achievement.

The meaning of terms is inevitably connected to the time and place of their use. Much as the term "achiever" has come to mean something less exclusive, even generally attainable in the modern educationist's argot, we must allow for the possibility that the term as we (and Random House) know it has no exact equivalent in the Greece of 2000 to

3000 years ago. If it has, I've yet to find it. With democratic ideals still in their infancy, the Greeks invariably ascribed great feats to innate ability (or "divine inspiration") rather than to hard work and education. Despite our differences, however, we are probably closer to the Greeks in our appreciation of human achievement than we are to some remote non-Western peoples who are our contemporaries. The Greeks had their great artists and philosophers, scientists and inventors, athletes and generals just as we do. And they meditated, as we do, on what made those individuals and their works (and Greeks in general) superior. What distinguishes their meditations on these matters is the word that stands at the heart of all Greek thinking about excellence: *arete* - typically, though inadequately, translated as "virtue".

The term "virtue" today verges on the archaic, having passed out of vogue along with "vice", "sin," and "seven cardinal" anything. Should someone occasionally still refer to the "virtue of a particular work," or to the "virtuosity" of a performer, then some faint echo of what arete meant to the ancient Greeks can still be heard. While the Christian transignification of the Latin *virtus* ("manliness") into a moral term presumed to translate the Greek arete greatly obscures our understanding of it, what makes it even harder to get a handle on arete is the fact that its own meaning evolved considerably from its initial appearances in Homer to its later renderings in the hands of Plato and Aristotle.

Like virtus, arete originally carried connotations of martial valor. In Werner Jaeger's classic work on Greek civilization, Paideia: The Ideals of Greek Culture, he describes its oldest meaning as "a combination of proud and courtly morality with warlike valor" (Jaeger 1970, 5), but notes that:

> In Homer, as elsewhere, the word arete is frequently used in a wide sense, to describe not only human merit but the excellence of non-human things -- the power of the gods, the spirit and speed of noble horses. . . . The root of the word is the same as that of *aristos*, the word which shows superlative ability and superiority; and *aristos* was constantly used in the plural to denote the nobility [Hence, "aristocracy" (author's note)]. It was natural for the Greeks, who ranked every man according to his ability, to use the same standard for the world in general. That is why they could apply the word *arete* to things and beings which were not human, and that is why the content of the word grew richer in later times. For a man's ability can be appraised by different standards, varying according to the duties he has to perform. (Jaeger 1970, 5)

Arete thus comprises the notion of superior ability which we assume of those we call "achievers." But not every duty performed in a superior fashion qualifies one to be called an achiever or to lay claim to arete. Superior housecleaners, thieves, or parents would be denied that recognition both by the Greeks and ourselves. In the world of the Iliad, the superior intelligence of Odysseus is respected but not yet fully recognized as arete (Jaeger 1970, 8). In the modern world, we honor the scientist but are understandably less inclined than our Greek forebears to recognize the achievements of an Alexander. Again, different times bring different applications. But the connection of both arete and achievement with public recognition persists and is

important: analytically it helps distinguish an achievement from an accomplishment which may be measured by entirely private or personal yardsticks, as when a child first learns to read or one's spring cleaning is finally finished. And it is the honorific connotations of the word "achieve" that similarly incline us to call an ingeniously successful heist the "feat" of an "accomplished" thief rather than an "achievement."

The association of arete with public yardsticks and esteem gave the Greeks the first clear insight into what motivates achievers, namely, the craving for that highest of public recognitions, the honor of one's peers. "Honor is the prize of virtue," according to Aristotle (*Eth. Nic.* (trans. Richard McKeown) IV, 2, 1123b36) because it is "the greatest of external goods" (*Ibid.*, IV, 2, 1123b20) and great virtue, naturally, deserves great reward. This phrasing in terms of "prizes" and "rewards" is not meant to suggest that virtue was but a means to an end. Honor and arete were originally all but indistinguishable. Jaeger tells us that honor was "an essential concomitant of arete" (Jaeger 1970, 8). Aristotle's wording simply reflects the rationalizing influence of later philosophy:

> The philosophy of later times . . . bade man obey an inner standard: it taught him to regard honour as the external image of his inner value, reflected in the criticism of his fellows. But the Homeric man estimated his own worth exclusively by the standards of the society to which he belonged. He was a creature of his class: he measured his own arete by the opinion which others held of him. (Jaeger 1970, 9)

Thus for Homer and the aristocracy of his time "denial of honor due was the greatest of human tragedies" (Jaeger 1970, 8-9), as one had no arete withoutit. For evidence of this, we need only recall the pivotal episode in the Iliad when Achilles feels his honor slighted by Agamemnon and haughtily withdraws his forces, turning the tide of war against the Greeks. The modern reader tends to be annoyed by Achilles' apparent over-reaction, as we have learned over the millenia since Homer how little the roar of the crowd has to do with virtue. Nonetheless, as Aristotle points out:

> Men seem to pursue honor in order to assure themselves of their own worth --their own arete. They strive to be honored for it, by men who know them and who are judicious. (Aristotle, *Eth. Nic.* (trans. Jaeger 1970, 9) I, 4, 1095b26)

The modern, Western world seems less sensitive to dishonor than the ancient Greeks (or even contemporary Japanese). In this country, "honor" is a word little heard outside the ritual incantations of boy scouts and soldiers. We are no less concerned over recognition of our worth, however, as witness the extreme prejudice attached to academic plagiarism and the squabbles in academic journals over who was first with this or that idea. "Stealing someone's thunder" strikes a surprisingly deep chord of resentment in us, even in academic circles where ideas are presumed to be free flowing and not proprietary. The legendary feud between Newton and Liebniz over invention of the calculus (as though independent invention was impossible rather than merely intolerable) is evidence of the non-pecuniary nature of such injury.

Psychologists today would tend to affirm the "need for affirmation of self-worth" as a subject for research, but cringe at a study of honor's role in motivating achievers. "Honor" may lack precision as well as currency; it certainly lacks scientific cachet. That's doubly unfortunate, because "honor" is a term with an extensive (and impressive) literature behind it, while the "need for . . ." is a very recent construct of concern only to psychologists and educationists; also because, scientific as the phrasing sounds, "the need for affirmation of self-worth" is as obscure in its etiology and ground as honor is. How does this need arise? How do we know it's there? Do infants evidence it? How about other animals? Is it discernibly different from the needs for affection, belonging, or status? The questions multiply quickly, whether we talk about a need for self-affirmation or honor.

We will discuss needs-theory in more detail when we come to David McClelland's efforts in this century to establish a need for achievement. Suffice to say here that Bateson would most certainly reject the need for self-affirmation (along with the rest of needs-theory) as just another "factitious inner tendency" without basis in scientific fundamentals.

That is not to say that the pursuit of honor, recognition, or self-affirmation -- whatever we choose to call it -- is illusory. It is the assumption of some deep-seated need to account for such pursuits that

Bateson thought illusory. Bateson would reject the inner tendency approach and define the pursuit of honor in interactional terms which, in fact, seems appropriate. Recall here Bateson's redefinition of pride in relational terms: "conditional admiration provided by spectator, *plus* response by performer, *plus* more admiration, *plus* acceptance of admiration . . . (Cut the sequence where you will!)" (Bateson 1979, 134). Substitute "honor" for "admiration" and it's clear we're dealing with the same basic interaction.

This characteristically Greek explanation for achievement says that those with great abilities perform great deeds to gain the honor they are due. Their arete is realized in this recognition of their merit. Bateson would not object to this formulation. He would reject any implication that either the pride of the achiever or the acclaim of the crowd is somehow the key, the driving force to achievement; but he might well agree that both pride and honor are important to our understanding of great works and deeds. Pride and honor, for Bateson, would be elements in a complementary relationship between displays of virtuosity and their recognition by others. This interaction would be viewed as mutually reinforcing and schismogenic, acclaim tending to encourage pride and further displays of effort, bringing more acclaim, and so on. It is the positive feedback that develops among these elements that would drive the performer in the interaction towards achievement. Bateson's reformulation thus preserves rather nicely the

Greek sense of the necessity of both recognition and ability in gaining arete.

Still, it's not clear what hoisting the Greek explanation onto a cybernetic framework does either to or for it. The original has a direct, commonsense quality that talk of feedback circuits conspicuously lacks. It's harder to argue with. That same commonsense quality, on the other hand, diminishes our sense of any deep insight at work in the Greek explanation of achieving behavior. And it's hard to see how Bateson's complication of it makes it any deeper. To say, in effect, that people display their abilities because others appreciate such displays, and it's nice to be appreciated, only raises other questions. Why do people appreciate such displays? Are we sure they really do? Showing off one's superiority can just as easily arouse envy from those of lesser talents, especially where it brings reward. Rewarding superiority, moreover, may bring social mobility, which can be divisive and unwelcome to those with a stake in the established order. Consider the Japanese saying, "the nail that sticks out gets hammered down." Mutual reinforcement between the display of ability and its public recognition cannot be assumed, but must itself be explained. This deeper explanation must be sought elsewhere.

The explanation of achievement in terms of honor, on the other hand, does have potentially broad application. In any warrior culture

like ancient Greece, we can expect to find some equivalent of honor for great warriors and great feats on the battlefield. A soldier's first concern is survival. Conspicuous valor can rally soldiers together in the face of adversity and save their skins. Conspicuous cowardice can cause a deadly route. Courage must be encouraged and sacrifice must be shone appreciation. It's no surprise then that honor -- including honor for the dead -- is such a prominent feature of once-great warrior cultures like Japan, Italy, and those in the Arab world.

While the warrior culture helps explain the positive feedback between deeds and honor implicit in the Greek explanation, the explanation needn't be limited to only those cultures where martial values prevail. "Honor" is perhaps too restrictive a word for the interaction between achievement and recognition. Were we to recast the explanation in broader terms like "public acclaim" or "fame," we would have to allow that the explanation could serve just as well in our own commercial culture, where "honor" is rarely spoken. In fact, the Greeks continued to emphasize honor long after their days as a warrior society had passed. They honored their athletes and poets and statesmen, and created forums where superior talent of all sorts could be recognized. Recalling what Bateson said about the persistence of characterological learning, it should be no surprise that the Greeks would continue to anticipate (and thus impose) contexts of performance and acclaim long after the martial environment that first invoked them had passed.

While the explanation can be extended to quite a wide variety of contexts, I'm not sure it covers them all. Consider, for example, the Christian emphasis on humility when the power of the Church was at its peak, and the fact that the authors of so many books of the Bible, the architects of so many cathedrals, and the composers of so many glorious hymns and chants are unknown. Anonymity in the Greek canon is by comparison rare and unintended -- where is the honor in anonymous works? If acclaim should prove not to be the only value that guides achievers -- or, in Bateson's terms, if some other interaction should lead to the same result -- then again, another, deeper explanation would be needed to help us understand how one comes to embrace this or that path to achievement.

In assessing the adequacy of the Greek explanation, we have drawn on two rather general criteria so far that I've labeled "depth" and "breadth" (the latter is often called "scope of explanation," but that seems a regrettable mixing of metaphors). The Greek explanation lacks depth insofar as it doesn't help us understand anything more fundamental than the phenomenon in question. It offers little insight into human nature more generally, or the processes by which character is formed. It does show some breadth -- or scope -- by plausibly explaining achieving behavior in a variety of contexts beyond the one in which it was offered. We saw that it proves difficult, nonetheless, to universalize this explanation across all societies which have produced great works and deeds.

Of course, the Greeks didn't know about the Christians, and they weren't very interested in peoples other than themselves in any case. Nonetheless, they also came to feel the need for a deeper explanation of the motivation towards arete because, after all, not all Greeks concerned themselves with virtue. Aristotle laments that

> . . . [I]t is the nature of the many to be amenable to fear but not to a sense of honor . . . [for they] have not even a notion of what is noble and truly pleasant, having never tasted true pleasure. (Aristotle, *Eth. Nic.* (trans. Rackham 1968) X, 8, 1179b12-16)

As Greek society developed and prospered, "the many" became increasingly hostile towards the aristocracy and arete began to seem an endangered ideal. Much as in our own society, where a perceived breakdown in traditional values has led to close, critical scrutiny of the schools, the pillars of that Greek society, concerned for the value of arete, began to concern themselves with questions of education. Given that the pursuit of honor and arete does not come naturally to the many, was there some way they could be steered in that direction? Could character somehow be purposely developed?

I have referred several times already to Werner Jaeger's classic work on ancient Greece, *Paideia: The Ideals of Greek Culture*. *Paideia* is another of those Greek words that defies adequate translation. Francis Fobes' textbook, *Philosophical Greek: An Introduction*, defines it simply as "training, or instruction" (Fobes 1957, 287).

"Education," which suggests a less skills oriented, more intellectual concern with the development of the young, is a better translation. It is still inadequate, according to Jaeger:

> Education is such a natural and universal function of society that many generations accept and transmit it without question or discussion: thus the first mention of it in literature is relatively late. Its content is roughly the same in every nation -- it is both moral and practical. It consists partly of commandments like *Honour the gods*, *Honour thy father and thy mother*, *Respect the stranger;* partly of ancient rules of practical wisdom and prescriptions of external morality; and partly of those professional skills and traditions which . . . the Greeks named *techne*. . .
>
> The training of the young, in the above sense, must be distinguished from cultural education, which aims at fulfilling an ideal of man as he ought to be. In such an ideal pattern, utility is neglected. . . . The vital factor is *to kalon*, the Beautiful as a determinant ideal.. . . [W]e may, perhaps, use the word Education for the former and Culture for the latter. (Jaeger 1965, 3)

"Paideia" signifies culture, not in the anthropological sense of the sum of the ways and expressions of life which define a people, but rather in the way we might refer to someone as "cultured," or "refined," though these terms have become overly identified in recent times with opera buffs and the pretentiously idle. Jaeger notes that this ideal of culture first appears with the Greeks:

> They were the first to recognize that education means deliberately moulding human character in accordance with an ideal. . . . Only this type of education deserves the name of culture, the type for which Plato uses the physical metaphor of *moulding* character. (Jaeger 1965, xxii-xxiii)

The ideal to which the Greek character was to be moulded, of course, was arete. Arete had originally connoted martial valor and the

Homeric epics, extolling the heroes who had conquered Troy, had for hundreds of years provided the cultural ideals for all the Greek peoples. Plato notes that in his own time, perhaps 500 years or more after Homer's death, Homer was still considered by many the educator of all Hellas (Plato, *Republic*, X, 606E). Gradually however, the identification of arete with courage began to give way. As noted earlier, the content of the word grew richer in later times. This enrichment took a decisive turn during the eighth to the fifth centuries as the Greek city states were beset by political struggles challenging the hold of the aristocracy:

> Until these struggles began, the right of the nobles to administer justice -- in accordance with traditional usage, not by any written code of laws -- had been unchallenged. But as the economic position of the common people improved, the conflict between the freeman of low birth and the nobleman was naturally intensified. . . . The people demanded written laws . . . They made the word Justice, *dike*, the war-cry of the class conflict. (Jaeger 1965, 102)

The construction of written constitutions began in Sparta, at the hands of Lykurgos, and spread rapidly to the other city states in the Greek world (Forrest 1966, 143). Each city had its revered lawgiver, and they were esteemed as educators in much the same way as Homer, for their constitutions shaped the character of their people (Jaeger 1965, 110). The most famous codifier of written laws in Greece was Solon, of Athens, who revised the harsh codes of Drakon and introduced democracy. With the establishment of written laws a new ideal emerged, that of justice or righteousness, *dikaiosyne*:

> The new dikaiosyne . . . became arete *par excellence* as soon as the Greeks believed that they had found, in written law, a reliable criterion for right and wrong. After *nomos* -- that is, current legal usage -- was codified, the general idea of righteousness acquired a palpable content. It consisted in obedience to the laws of the state, just as Christian "virtue" consisted in obedience to the commands of God. (Jaeger 1965, 105)

The significance of this transition from the martial arete of the heroic age to that of the law-abiding, righteous citizen lies, first, in its universality -- in the fact that the ideal of arete had become something binding on all (male, freeborn) citizens, not just the nobility. In its emphasis on nomos, moreover, it laid the foundation for the later transformation of arete into a more intellectual ideal at the hands of the philosophers:

> Law is the most important stage in the development of Greek culture from the social ideal of aristocracy to the fundamental conception of man as an individual, as expressed by the philosophers. And the ethical and educational systems constructed by the philosophers constantly recall, in both form and content, the legislation of earlier periods. . . . Law is the mother of philosophy. . . . (Jaeger, 1965, p. 109)

Now that arete was expected of all citizens, it could no longer be viewed as something only those of noble blood were capable of. It was something that all were expected to pursue, and the success of that pursuit -- especially in going beyond the duties of citizenship into those of leadership -- was seen to depend on appropriate education:

> Arete had from the very first been closely bound up with education. But as society had changed, so also had the ideal of arete, and with it the way to achieve arete. Everywhere in Greece, therefore, attention was now focussed on the principal question: *What type of education leads to arete*? (Jaeger 1965, 286)

In this question lay the origins of the Greek paideia:

> Its aim was to transcend the aristocratic principle of privileged education, which made it impossible for anyone to acquire arete unless he already possessed it by inheritance from his divine ancestors. It seemed easy to transcend it by the application of logical reasoning, the new instrument whose power was constantly growing. There was only one method --to apply a deliberate system of education to the mind. (Jaeger 1965, 287)

Thus the Greeks became the first to seriously consider the question of how character could be developed. The debate over this question signals the emergence of Socrates and, through Plato's immortalization of him in his dialogues, the beginning of Western civilization's formal philosophical thinking on ethics, education, and politics.

Greek thought about the education and shaping of character begins with the idea of *mimesis*, or imitation. While parents and educators today still rely on this approach with the very young, especially, it is hard for us to appreciate the power this idea held for the Greeks:

> From Homer onwards, aristocratic education was governed by the idea of following noble examples. A great man is a physical embodiment of the norm which the pupil must follow, and the pupil's admiration for his ideal qualities naturally prompts him to imitate them. (Jaeger 1965, 310)

It was Homer's delineation of the Mycenean heroes that provided the ideal types for succeeding generations to follow and earned him the title of educator of all Hellas. Our notion of "role model" contains much the same idea, though typically watered down for modern tastes, substituting good examples for ideal types. The preoccupation of later

Greek poets and playwrites with characters of less than noble stature -- whether villains and madmen in tragedy, or caricatures of the high and mighty in comedy -- finally led Plato to argue for their ouster from his ideal Republic. Though Western thinkers have generally dismissed this censorious element in Plato's writings, there is growing concern in our own society over the glorification of violent, depraved, and brainless characters in television and film. In these ways, we share the Greeks' appreciation for the educative power of mimesis. However:

> This personal factor in imitation disappears when the laws provide the pattern. . . . But the normative element is maintained and even strengthened in the examples provided by the law -- the highest teacher of every citizen. . . .
>
> In the Athenian state law was not only the 'king' . . . but the school of citizenship. We do not think of it in that way now. Nor do we believe that the laws are the discoveries of great law-givers of the past: they are ephemeral things, as they were to become in Athens, and not even specialists can know them all. We can hardly imagine how, when Socrates was in prison facing death, and was offered a safe opportunity for escape to freedom, the laws could come to him in the shape of living persons and advise him to remain true to them in the hour of trial, because they had educated and protected him throughout his life. . . . (Jaeger 1965, 310)

For the Greeks the laws thus became veritable role models for adults -- impersonal, yet providing patterns for conduct (the most fundamental being to to behave justly, giving each his due) much as the Homeric heroes did in more youthful times. Would that we had such faith in our own laws -- and that our laws deserved them.

The Greeks' focus on mimesis was intimately bound up with their concern for pattern, for laws that could guide them both in civil life

and in understanding the world around them. For centuries in Greece, it was everywhere believed that dike, the universal law of justice, provided the pattern for both the political and natural realms (Jaeger 1965, 323). The philosophers later worked to refashion dike according to the universal laws of reason, elaborating cosmology on the one hand and political theory on the other; but the under-lying search for pattern and for laws by which noble souls might be formed was unwavering.

The notion of mimesis, of following a pattern, is clearly visible in Plato's forms (*eidos*). His thought was that each existing thing was modeled on an abstract form which contained its essential pattern or definition. As the scultor's clay takes the shape of the idea in his mind, so does the material world become shaped by the forms. The emphasis on the role of pattern in shaping our world is something Bateson shares, and it is in this light that he offers himself as a modern-day Platonist. In Plato, the ancient dichotomy of form and matter finds its clearest expression.

The grand argument over the education of character in ancient Greece begins with Plato's and Socrates' attacks on those itinerant philosopher/educators known as the sophists. The sophists' teachings were as varied and diverse as the laws of the various city-states their calling led them to. They were sought out especially by those concerned with establishing their political positions in the wake of

the nobility's declining fortunes. They taught oratory and professed to provide a "universal insight into the nature of human life" which was essential for leadership in the new polis (Jaeger 1965, 290). Training for leadership was understood as a further cultivation of the new political arete that obliged everyone to embody the spirit of the laws in following them. Those so trained could presumably be entrusted to make the laws as well (Jaeger 1965, 290). But could the sophists be trusted with such a critical educational task? Socrates put the challenge.

The sophists' cosmopolitanism tended to make them relativists, like Protagoras, famed for his pronouncement that "man is the measure of all things." And that relativism, in the context of leadership training, led some of them inevitably to ponder the rule of dike and to question whether giving each his due might mean anything very different from "might makes right." Their pupils, being drawn almost entirely from the ranks of dispossessed nobility and the newly monied class, were a receptive audience for this message. Socrates and Plato argued against this unprincipled view of arete in dialog after dialog.

Socrates' arguments with the sophists hinged on the idea that right action could not follow reliably upon scattered teachings and examples, but needed to be grounded in a knowledge of the good itself -- a grasp of its essential definition or pattern. If one really knew what was good and right to do, Socrates argued, one would invariably do it

because it is in one's own best interests to do so. The examples of the mighty who, blinded by passion, had pursued actions to their own and everyone else's detriment were numerous enough to show that power alone could not define the good. It took reason to perceive what the good was.

There is an assumption here, developed later by Plato, that reason properly rules the passions in the well ordered soul. In fact, Plato's model of the soul is tripartite and hierarchical, the lowest part being the desires, the two higher parts corresponding to the original, martial conception of arete and to the arete of justice and reason (obedience to law) that succeeded it:

> [Socrates:] "Then it is proper for the reasoning part to rule, because it is wise and has to use forethought for the whole soul; and proper for the high-spirited part to be its ally and subject?"
>
> [Glaucon:] "Certainly."
>
> [Socrates:] " . . . These two, then, thus trained and educated . . . will preside over the desiring part, which is the largest part of the soul in each man, and by its nature can never have wealth enough. This they will watch lest it be filled full of what are called the bodily pleasures. . . " (Plato, *Rep.* (trans. Rouse 1956) IV, 441D)

Later philosophers came to label these the three "faculties" of reason, will, and desire. True arete, according to Plato, was possible only in the well-ordered soul. The short answer, then, to how good character and arete is developed is through the training and empowering of one's rational faculties via study in mathematics, geometry, astronomy, logic and the other intellectual disciplines -- culminating,

of course, in philosophy. Short answer, long path. I find this personally persuasive, but suspect it lacks mass appeal.

The problem with this prescription, of course, is that if the *hoi polloi* are such slaves to desire that they have no notion of nobility, how can we expect them to take up the enthusiastic, lifelong pursuit of intellectual discipline? Is there reason, for that matter, to suppose this pursuit is attractive to any but a few of the aristocracy? Granted that right action and arete will flow more reliably from a clear knowledge of what is good and true, can we not find some way to provide the many with at least some good rules of thumb and some encouragement to follow them?

Plato's prescription for intellectual discipline was intended, of course, for the rulers, those charged with the responsibility for making and administering the laws of the polis. Of the rulers, he argued, we must demand more than rules of thumb and generally right beliefs. They must know what they are doing, because the good of everyone is in their hands. The conclusion is inevitable: the statesmen in charge of his ideal republic must be philosopher kings. A properly trained military should support them in restraining the lusts of the hoi polloi and doing what is best for all. Thus reason would rule in the state as it should in the soul -- the pattern would be the same. A primary duty of these statesmen, moreover, would be to ensure the proper education of all the citizens of that state.

The Republic and several of the later dialogs of Plato are filled with advice to would-be philosopher-kings on the training of the young in everything from gymnastics and music to their future trades, whatever those might be. The common thread running through them is the emphasis on controlling the passions, whether through the physical discipline of athletics or the elimination of lurid works of art. The rulers, of course, would teach by their own example. Where role models and education proved insufficient to the task of controlling passions, the law would take over.

Plato's account of the well ordered soul describes, in effect, the path of discipline which is the route to achievement. The pursuit of lofty and distant goals requires the would-be achiever to turn aside from base and immediate desires. Men may pursue arete for the sake of honor, but that pursuit requires discipline and the well ordered soul makes us capable of that. The will in such souls aligns itself with the dictates of reason against the demands of desire and the lures of pleasure. Only such souls can learn to appreciate and desire what is "noble and truly pleasant."

Plato's explanation of discipline and the well ordered soul is a useful contribution to our understanding of the achievement oriented character type. It falls short, however, in terms of a general explanation of the development of character. We can assume that, for those less favored souls, the "spirited" or acquisitive faculties have

taken control; but Plato doesn't discuss the process by which these lesser character types come to be in much detail. We know that the sort of art that appeals to our baser nature plays a role, but it was left to Aristotle to put forward a more systematic account.

Aristotle does finally pull the Socratic and Platonic thinking on arete and paideia together in a more organized manner, summarizing and superceding it in his usual profound but textbookish fashion. He suggests, for instance, that the definition of the Good that Socrates sought for so long was simply happiness, "that for the sake of which everything else is done" (Aristotle, *Eth. Nic.*, (trans. Rackham 1968) I, 7, 1097a23). And a man's happiness, in turn, is to be found in "the exercise of a soul's faculties and activities in association with rational principle . . . in conformity with excellence or virtue" (*Ibid.*, I, 7, 1098a15-17). This sounds familiarly Platonic, and again the quesiton is how such souls are formed. This leads Aristotle into the discussion of character development.

The general pattern for excellence of character is to be found in the Law of the Mean (Aristotle, *Eth. Nic.*, II). Sometimes called the "Golden Mean" (recalling the Golden Rule, which is appropriate since arete has by now assumed nearly the Christian meaning), this Law suggests that the moral virtues, like courage and temperance, always lie somewhere between two vices -- rashness and cowardice in the case

of courage, profligacy and insensibility in the latter. Too much or too little is invariably the error, according to Aristotle.

One gains these virtues as one gains their corresponding vices, through that form of imitation we call practice:

> The virtues . . . we acquire by first having actually practiced them, just as we do the arts. We learn an art or craft by doing the things that we shall have to do when we have learnt it. . . . Similarly we become just by doing just acts, temperate by doing temperate acts, brave by doing brave acts. (Aristotle, *Eth. Nic.*, II, 1, 1103b1-5)

Though we tend not to think of it quite that way, practice was readily seen as a form of imitation by the Greeks. Eventually, that practice which constitutes our daily life will lead, for better or worse, to the formation of habits:

> It is by taking part in transactions with our fellow-men that some of us become just and others unjust; by acting in dangerous situations and forming a habit of fear or of confidence we become courageous or cowardly. And the same holds good of our dispositions with regard to the appetites, and anger; . . . [O]ur moral dispositions are formed as a result of the corresponding activities. Hence it is incumbent on us to control the character of our activities, since on the quality of these depends the quality of our dispositions. It is therefore not of small moment whether we are trained from childhood in one set of habits or another; on the contrary, it is of very great, or rather of supreme, importance. (*Ibid.*, II, 1, 1103b15-250)

It is one's habits, in turn, that produce one's moral character. In support of this idea, Aristotle points out that the Greek word for character is itself derived from the word for habit (*Ibid.*, II, 1, 1103a18).

Bateson would readily agree with Aristotle's definition of character as a set of habits. Learning those contexts of life which constitute our charactero-logical learning, Bateson tells us, is precisely a matter of habit formation:

> Habit formation has sorted out the constant from the changeful so that that which for a long time has seemed recurrently true has become deeply embedded in the circuitry of the organism while the changeful remains under flexible control. (Bateson 1991, 137)

And taking that a step further: "What I have called habit formation . . . is synonymous with the development of self" (Bateson 1991, 108). Habit, unlike need, is not something lying behind our activities as the cause of them, but rather a description of how those activities are pursued -- in this case, unconsciously, as the product of repetition and deutero-learning.

Aristotle's emphasis on developing those habits, and thus our character, through "transactions with our fellow-men" is also something Bateson would readily agree with; but Bateson's notion of character focuses more on the original framing of the situation than on the choices made within that frame. Simply identifying a context as one of danger, where personal bravery may be relevant and required, says more about one's character than how one actually comports oneself within that situation. As an anthropologist, Bateson is trying to explain how character is configured differently in different societies; as a Greek, Aristotle is trying to explain how good and bad character develops within the typical Greek configuration. Though it was Aristotle who

coined the notion of "meta" theory (as in his *Metaphysics*), Bateson's thinking here stands in a meta-relationship to Aristotle's.

There is a similar sort of meta-relationship at work between Bateson's and Aristotle's approach to the education that produces character. And Aristotle's view is not all that different from Plato's, so the same meta-relationship holds there as well. In proposing that we develop the habit of seeking a virtuous mean between the extremes of vice in all our human transactions, Aristotle is following Plato's admonition to live by the dictates of principle and reason, but going him one better by specifying the principle. Though he is more specific about the processes of practice and habit formation that underlie character, he accepts without question the Platonic view of the transactions that encourage right habits: praise and blame from those worthy and able to make such judgements, backed in the end by the power of law:

> Lawmakers make the citizens good by training them in habits of right action -- that is the aim of all legislation, and if it fails to do this it is a failure; this is what distinguishes a good form of constitution from a bad one. (Aristotle, *Eth. Nic.*, II, 1, 1103b5-6).

Perhaps because of his awareness of Freud, but in any case consistent with his own ideas on the critical role of context, Bateson tends to place more emphasis on how those "habits of right action" are inculcated than on what they are. For instance, an ethic of love and charity driven home with corporal punishment and threats of hell might

lead a child to develop a very different sort of character than the one intended -- namely, one preoccupied with dominance and submission, or a tendency to rebelliousness. To recall an earlier quote:

> When the patient tells the therapist that, in her childhood, she learned to operate a typewriter, this is of no particular interest to him unless he happens to be a vocational counselor as well as therapist. But when she starts to tell him about the context in which she learned this skill, how her aunt taught her and rewarded her or punished her or withheld reward and punishment, then the psychiatrist begins to be interested; because what the patient learned from formal characteristics of *patterns* of the contexts of learning is the clue to her present habits, her "character" . . . (Bateson 1991, 54)

The reliance on praise and blame, of course, is a reasonable prescription for an ethics and a culture oriented towards honor; but again, the question is one of scope, and Bateson's is the sort of complex and empirically generalizable position we might expect of an anthropologist. Pointing out this limitation, however, detracts little from the power of Aristotle's analysis. It is the culmination of one of the single most influential lines of thought in the Western tradition.

The Greek achievement, first in identifying the cultural ideal of arete and then in consciously developing a paideia, an educational approach capable of realizing it, can hardly be overestimated. By articulating the notions of practice and habit in the service of reason as the path to excellence of character they have given us a clear and credible model of the achievement process with relevance not only to

moral excellence but to artistic and other kinds of excellence as well. While in many ways culture-bound, the power of the Greek viewpoint as laid out in Aristotle's analysis was such that it could be taken over with relatively minor alterations by St. Thomas Aquinas to serve as the basis of Christian ethical doctrine to this day. Most of us still see the relationship between practice, habits, and character in much the same way that Aristotle lays it out. That we in the West, in fact, still see individual excellence as a goal we are morally obliged to pursue is testimony enough to the influence of their vision.

Nor are we concluded yet with our examination of the Greeks, for in addition to their thought on matters of excellence and how to steer people towards it we must still consider that "ancient dichotomy between form and substance" that has its origins with them. To understand the significance of this dichotomy to Bateson and to our own examination of achievement orientation, we'll backtrack a bit to Plato and to his remarkable reworking of the standard Greek view that men pursue arete for the sake of honor.

Plato's Explanation of Achievement

We mentioned before that in Plato's Republic the citizenry is divided into three categories, corresponding to the three faculties of the soul: the rulers, who are trained in philosophy, representing

reason; the guardians, who are the military class, representing the will; and the commercial class, the hoi polloi, who represent desire. Though we tend to think of pleasure as the ultimate object of desire and of the common run of men, Plato points out that each of the classes (and the parts of the soul corresponding to them) has its own distinct pleasures, and each thinks its own the best:

> . . . [T]he money-maker, at any rate, will say that, compared with getting gain, the pleasure of honor or of learning is worth nothing at all, unless perhaps there is a bit of money in them . . .
>
> Isn't the honor-lover the same? . . . Doesn't he see something vulgar in the pleasure that comes from money? And indeed, the pleasure of learning too, unless learning brings honor with it, he thinks only smoke and nonsense?
>
> . . . But the philosopher! . . . The lover of wisdom! What are we to suppose he thinks of the other pleasures as compared with that of knowing the truth as it is, and always being a learner in that school? . . . [H]ow great is the pleasure of contemplating things as they are, none but the philosopher can ever taste. (Plato, *Rep.* (trans. Rouse 1956), IX, 580E)

If we can conclude from this that the *Republic* was not written for mere love of honor, since the philosopher Plato could have no desire for such base pleasure, we might ask why it was written at all? Why did Plato not simply lose himself in the ecstasies of contemplation? He certainly didn't need to earn a living by his writings. Perhaps he felt some duty to share what he had seen, the noblesse oblige of a born aristocrat to his fellow Athenians. He asserts no qualms about forcing his philosopher-kings to share their knowledge, as they benefitted from the education provided by their polis (Plato, *Rep.* VII, 519DE). But he acknowledges that:

> . . . [T]hose who grow up philosophers in other cities have reason in taking no part in public labors there; for they grow up there of themselves, though none of the city governments wants them; a wild growth has its rights, it owes nurture to no one, and need not trouble to pay anyone for its food. (*Ibid.*, VII, 519E)

So what explanation might Plato give for those other master-works of intellect that his fellow philosophers have bequeathed to us? And considering what the government of Athens did to his own mentor, Socrates, could duty be a credible motivation even in his own case? Never one to shirk the implications of his thought, Plato suggests an especially intriguing answer in the Symposium.

In this dialog, Socrates and his fellow revellers discuss the nature of love. This is a unique dialog, for as one Plato scholar points out, "it is the only subject not covered by Socrates' profession of ignorance":

> [Socrates:] . . . I do not know how I could refuse to speak on the subject (of love), seeing that I have no claim to knowledge at all other than that of (te erotika) matters concerning love. (Plato, *Symposium*, 177DE; in Versenyi 1963, 128)

His knowledge of these matters was reportedly gained through the instruction of a priestess, Diotima. As Socrates recounts the story, he was led by Diotima through a dialectic much like his own till the true nature of love was finally revealed to him. The starting point is the assertion that "all who feel desire, feel it for what is not provided or present; for something they have not or are not or lack", and that love is directed toward beautiful things (Plato, *Symposium*

(trans. Lamb 1967), 200E-201A). It is also readily agreed that good things are beautiful (*Ibid.*, 201C). There are then two decisive turns in the dialog. The first is towards generalizing not only the object of love, but love itself -- for the possession of good and beautiful things makes us happy, and everyone desires happiness: "Generically, indeed, [love] is all that desire of good things and of being happy" (*Ibid.*, 205D) As the Plato scholar, Francis Cornford, summarizes it:

> Eros is the desire for possession of beauty and goodness, that is to say, of happiness. This desire is universal: 'All have a passion for the same things always.' The name Eros has been wrongly restricted in common speech to what is really only one form of this universal desire. (Cornford, "The Doctrine of Eros in Plato's *Symposium*," in Vlastos 1971, p.123)

Thus, those who devote themselves to the pursuit of happiness "through money-making, an inclination to sports, or philosophy" are lovers, even though we don't usually describe them that way (Plato, *Symposium* (trans. Lamb 1967), 205D).

The second decisive turn is taken when Diotima reiterates that "men love the good" and "love the good to be theirs," and then adds the qualification that "they love it to be not merely theirs but theirs always" (*Ibid.*, 206A). This further admission is critical, for what can it mean that the good be "theirs always?" Diotima says such possession is possible "through a breeding in the beautiful, both of body and soul" (Plato, *Symposium* (trans. Rouse 1956) 206B). In short, as Cornford puts it:

> By means of the characteristic operation of love, generation. In all human beings there is the urge to bring to birth children, whether of the body or of the mind. The end is not the individual's immediate enjoyment of beauty . . . Procreation is the divine attribute in the mortal animal. Eros is, in the last resort, the desire for immortality. (Cornford, *op. cit.*, 124)

As evidence for this position, Diotima offers the example of animals:

> 'You perceive that all animals get into a dreadful state when they desire to procreate, indeed birds and beasts alike; all are sick and in a condition of love, about mating first, and then how to find food for their young, and they are ready to fight hard for them, the weakest against the strongest, and to die for them, and to suffer the agonies of starvation themselves in order to feed them, ready to do anything. One might think that man,' she said, 'would do all this from reasoning, but what about beasts?' (Plato, *Symposium* (trans. Rouse 1956), 207A)

Why do (many, not all) animals behave this way? Because "the mortal nature seeks always as far as it can to be immortal; and this is the only way it can, by birth. . . . " (*Ibid.*, 207D)

This is an intriguing argument, of course, because the modern evolutionary perspective allows that the reproductive instinct (though not the nurturing and protective instincts) is indeed universal. Diotima then elaborates a fair analogy to a sociobiological argument by suggesting that:

> If you consider human ambition, you will marvel at its irrationality, unless you reflect on what I have said, and observe how strangely men are moved by the passion for winning a name, and laying up undying glory for all time . . . (Plato, *Symposium* (trans. Cornford, in Vlastos 1971, 125) 208C)

And she concludes: "I hold it is for immortal distinction and for such illustrious renown . . . that they do all they can, and so much the more in proportion to their excellence." (Plato, *Symposium* (trans. Lamb 1967) 208DE)

In addition to, or instead of having children, in other words, some individuals seek to further their immortality by building a reputation that outlives them. Plato thus explains the desire for honor and the affirmation of self-worth that was so much a part of the earlier warrior-aristocracy's striving for arete: such ambition is grounded in our nature as mortals seeking eternity. And there is still another way in which this urge is manifested:

> '. . . there are some,' she said, 'who conceive in soul still more than in body, what is proper for the soul to conceive and bear; and what is proper? wisdom and virtue [*arete*] in general -- and to this class belong all creative poets and those artists and craftsmen who are said to be inventive. But much the greatest wisdom,' she said, 'and the most beautiful, is that which is concerned with the ordering of cities and homes which we call temperance and justice. (Plato, *Symposium* (trans. Rouse 1956) 209A)

Diotima goes on list Homer and Hesiod among the poets who have gained "immortal fame and memory," and then the great lawgivers, Lycurgus in Sparta and Solon in Athens, who could fairly be called the fathers of their city-states ("And everyone would be content to have such children born to him rather than human children . . . " (*Ibid.*, 209C)). Having subsumed the two earlier understandings of arete and its pursuit under the general heading of begetting immortal children Diotima comes around, finally, to the philosopher and the understanding

of the arete of virtuous wisdom that Plato and his cohorts were so effectively promoting. The philosopher should direct his gaze at "beauty as a whole," she says, and "in contemplation of it give birth to many beautiful and magnificent speeches and thoughts in the abundance of philosophy" (*Ibid.*, 210D).

Thus Plato explains the achievements of poets, inventors, educators and lawgivers, and even of philosophers like himself. I have taken some time to present Plato's thoughts on achieving behavior and the background behind it because no better explanation was offered for over two millenia, and because it meets several criteria for what we might consider an adequate explanation.

First of all, it is very broad in scope: it claims sufficient universality to cover all instances of the phenomenon in question - not just artistic or scientific achievement, or superior academic or battlefield performance, or behavior within an experimentally contrived situation, but every sort of achievement oriented activity. The urge to immortality may even serve to explain the achievements of those anonymous architects of Gothic cathedrals, since there is no anonymity before God and His reward for devotion to His works is well known.

Second, it seeks to explain achieving behavior not as an isolated phenomenon but as part a general theory of human behavior with both political and psychological dimensions. It begins with what seems an

incontrovertible and fundamental principle, namely that all men pursue what they perceive to be happiness. It develops a theory of the psyche based on that principle and on an hierarchy of ends, which then provides a powerful metaphor for the state and the ways it might be ruled.

Third, while the explanation allows for human uniqueness, it also recognizes man's continuity with other life forms by grounding the phenomenon in the reproductive imperative, which is as fundamental a biological principle as one can hope to find. The fact that it can easily be tied in to a theological perspective is certainly no argument against it.

And finally, it is elegant -- and eloquent -- in its simplicity.

The most glaring problem the theory runs into, as does the entire philosophical tradition running from Socrates and Plato through Aristotle to Aquinas, is its reliance on final causality: To say that noble souls achieve in order to secure immortality is to suggest that the effect of an action is somehow its cause. Though we all assume this causal model whenever we explain our actions by our intentions, it doesn't work as well for other life forms and, more to the point, it flatly contradicts the conventional scientific paradigm which tells us that causes precede their effects. It also suggests that events in the material world can be effected by intangible causes such as ideals and

goals -- another commonplace assumption not readily shared by many "hard" scientists who are convinced that the mind's operations will eventually be explained in purely physio-chemical terms. And that brings us, finally, to Bateson's call for a new look at the "ancient dichotomy between form and substance".

The Problem of Teleological Explanation

We can begin with our quote in the first section from Bateson:

> . . . [I]t all starts, I suppose, with the Pythagoreans versus their predecessors, and the argument took the shape of 'Do you ask what it's made of - earth, fire, water, etc.?' Or do you ask, 'What is its *pattern*?' Pythagoras stood for inquiry into pattern rather than inquiry into *substance*. That controversy has gone through the ages, and the Pythagorean half of it has, until recently, been on the whole the submerged half. (Bateson 1972, 449)

Our notion of substance, or rather "matter," as that from which all physical things are formed, goes back to the sixth century B.C. and to the very beginnings of ontological speculation in the ancient Greek territory of Ionia, on the coast of Asia Minor. Of those pre-Socratic philosopher/physicists, little remains but secondhand reports and fragments of their writings. While best remembered for their disagreements over the nature of the "ultimate stuff", whether it be earth, air, water, or fire - or some combination - this picture is rather a caricature (Kirk and Raven 1966, 88-9).

What merits their title as the first philosophers is their abstraction of the idea of a unity underlying the "buzzing, blooming confusion" of our world, and their identification of this unity as material (Copleston I/1 1962, 36). Aristotle thus credits them with having isolated the first of his four types of *cause*, namely material causality. When we explain the make-up of the physical world with reference to atoms, sub-atomic particles, or fundamental forces, we are similarly seeking to understand the world in terms of its material basis.

Aristotle's "four causes" (the material, efficient, formal, and final) go beyond what we would typically include today under the heading of "causation," inasmuch as atoms, for example, are not thought to cause the things they constitute. The four causes can be said, however, to comprise a reasonably inclusive list of the basic types of explanation available to us. Indeed, Aristotle's exposition of them represents the first rigorous attempt to explain what it means to explain anything. To explain something is to know the *why* of it, as this provides scientific knowledge rather than the merely true beliefs which make up so much of our factual "knowledge." As Aristotle states in his *Posterior Analytics*:

> We suppose ourselves to possess unqualified scientific knowledge of a thing, as opposed to knowing it in the accidental way in which the sophist knows, when we think that we know the cause on which the fact depends, as the cause of that fact and of no other, and, further, that the fact could not be other than it is. (Aristotle, *Anal. Post.* (trans. Murc, in McKeon 1947) I,2, 71b)

As our own interest lies in understanding what sort of explanation Bateson is proposing for character, and as he claims to base his approach on a reconsider-ation of the "ancient dichotomy between form and substance" (two of the four causes) Aristotle's analysis should provide a useful starting point.

Aristotle's classic exposition on the subject of causality is laid out in what has become known as the *Metaphysics*, the title given by an early editor of his works to the treatises placed "after the physics" (McKeon 1947, 238). The discussion in the *Metaphysics* proceeds by way of a critical history of previous philosophical thought on the subject, culminating in Aristotle's own grand synthesis. His critique is aimed at preserving the fundamental validity of each previously proferred causal principle while pointing out its limitations, and at promoting his own articulation of the principle of final causality.

Aristotle's criticism of the material causality of the Ionian philosophers (and of the Atomists who came after them) centers on the inability of these earlier philosophers to account in any coherent way for diversity and change:

> For, indeed, the underlying subject itself does not cause itself to change. What I mean, for example, is this: neither the wood nor the bronze causes itself to change; the wood does not make a bed, nor the bronze a statue, but some other thing is the cause of change. Now to seek this is to seek another principle, namely, as we might say, the source which begins motion. (Aristotle, *Metaphysics*, (trans. Apostle 1966) A, 3, 984a23-27)

This next principle, the efficient cause, is the one typically captured by our modern notion of cause and effect, with its connotations of billiard balls and its classic expression in Newtonian mechanics. Material and efficient causes were, historically, the first to be identified according to Aristotle, and they have dominated the popular conception of the physical sciences (some would say all "rigorous" science) from Galileo's time till the present. Within the scientific community itself this limited, dual focus on the material half of the ancient dichotomy has never sufficed. Its inadequacies were certainly apparent to Aristotle, whose *Metaphysics* goes on to identify the remaining two modes of causality.

The formal side of the dichotomy was acknowledged to some degree even by the Atomists. While atoms were claimed to be imperceptible, indivisible, and devoid of all qualities save impenetrability, they were not entirely devoid of form (Copleston I/1 1962, 90). To explain the diversity apparent in the world around them, Leucippus and his followers postulated atoms of varying shapes and sizes. With these minimal differences, and arranged in different ways, atoms in sufficient quantities were presumed to form all the diverse and sundry entities of our world. The atomists' concern for form and structure, minimal as it was, persists in the modern chemist's concern for molecular structure.

Aristotle (and Bateson), however, traces the concern with form back beyond the Atomists to the Pythagoreans, who flourished in Italy a hundred years earlier and contemplated form in its less material aspects. Pythagoras is generally credited with two major discoveries of a mathematical nature: first, the theorem which bears his name in geometry; and second, "that the notes on the lyre may be expressed numerically":

> Pitch may be said to depend on number, in so far as it depends on the lengths [of the strings], and the intervals on the scale may be expressed by numerical ratios. (Copleston I/1 1962, 49)

The power of these mathematical insights convinced the Pythagoreans that the "principles of mathematical objects" were "the principles of all things" (Aristotle, *Meta*. A, 5, 985b24-6). Their identification of things with numbers (the female is equated with two, the male with three, and justice with four) leaves them open to the charge of number-mysticism; but the Pythagoreans were, nonetheless, the first to move away from a preoccupation with materialism and material causality towards a direct appreciation of the power of abstraction (Copleston I/1 1962, 52-3). The Pythagorean idea that something as abstract as numbers could make a material thing what it was clearly helped shape Plato's theory of Forms.

Bateson allows that he himself came to adopt "what I think is called a Platonic view," which he presents in this way:

> Plato's most famous discovery concerned the "reality" of ideas. We commonly think that a dinner plate is "real" but that its circularity is "only an idea." But Plato noted, first, that the plate is not truly circular and, second, that the world can be perceived to contain a very large number of objects which simulate, approximate, or strive after "circularity." He therefore asserted that "circularity" is *ideal* . . . and that such ideal components of the universe are the real explanatory basis for its forms and structure. . . . In the beginning was the idea. (Bateson 1979, 4)

Rather than numbers or Forms, Bateson comes to emphasize the explanatory power of *pattern*, which he loosely defines as "similar relations between parts" (Bateson 1979, 9) and, more technically, as a synonym for *redundancy* [Bateson 1972, 413-14) meaning a "predictability of particular events within a larger aggregate of events" (Ibid., 406). We are getting a bit ahead of ourselves, however. To understand the basis for this discussion, we need to return to Aristotle's four causes.

When Aristotle speaks of "formal causes," he intends a contrast with material causality, much as Bateson suggests, but also something rather less in keeping with the modern temper:

> Following these thinkers and their [material] principles, since such principles were not sufficient to generate the nature of things, later thinkers, forced once more by truth itself as we said, sought the next principle. For it is perhaps unlikely that Fire or Earth or any other such should cause things to be good or noble or that those thinkers should have thought so; nor again was it right to entrust a matter of such importance to chance or to luck. When someone said that Intelligence exists in nature, as in animals, and that He is the cause of the arrangement and of every kind of order in nature, he appeared like a sober man in contrast to his predecessors who talked erratically. (Aristotle, *Meta.*, A, 3, 984b9-18)

With these words, Aristotle begins his discussion of the "submerged half" of Bateson's "ancient dichotomy" and inadvertently reveals much of the reason for its submersion. Modern science does not speak comfortably about the causes of goodness or nobility, or about the Intelligence behind all things. But the phrasing here is extravagant: When Aristotle speaks of formal causes in the strict sense he means simply the cause of a thing's "whatness," the "inner nature of a thing which is expressed in its definition, the plan of its structure" (Ross 1966, 74). This was the causal principle which Plato first identified and elaborated in his theory of Forms, although the actual operation of that causality was obscure - a point not lost on Aristotle:

> . . . [O]ther things do not come to be from the Forms in any of the usual senses of "from." And to say that the Forms are patterns and that the other things "participate" in them is to use empty words and poetic metaphors. (Aristotle, *Meta.*, A, 9, 991a19-23)

For Aristotle, the form is immanent within the individually existing thing, giving actuality to the raw potential provided by matter. He refers to this individual combination of form and matter as a "substance," though sometimes "substance" is used with reference to the form alone -- hence my discomfort with Bateson's phrase, "the ancient dichotomy of form and substance."

The union of form and matter in the biological world takes place through the dynamic processes of growth and development whereby each individual becomes fully realized in its adult form. The hackneyed example is the acorn that grows into the mighty oak. It is hard for

the modern mind to reflect on the formal cause leading the acorn to realize its essential "treeness" without thinking of the DNA at work in each and every living cell. The chromosomes do carry the "plan of the structure," the basic patterns that determine the species, and they do drive the organism's development to maturity. But the operations of the genes are known to proceed through highly complex chains of efficient causes; the modus operandi of formal causation in Aristotle is rather more mysterious.

Though Aristotle's notion of the immanence of form in the individual entity answers questions raised by Plato's "participation," he seems unable to explain its agency without reference to other causal principles. Sometimes the realization of the form relies on outside agents serving as efficient causes, like the sculptor who shapes and thereby realizes a potential sphere in bronze (Aristotle, *Meta.*, Z, 8). When speaking of living organisms, however, the actualizing effect of the formal cause seems to depend on the agency of a fourth causal principle, that of finality.

The final cause refers to something's raison d'etre, its purpose. In a living organism, according to Aristotle, this meant its fully developed, fully realized nature -- its adult form, before the onset of decline. To realize this form is the innate end, the *telos*, of every living creature and this *telos* plays a causal role in realizing that form (hence the term, "teleological explanation"):

> Thus the acorn, in the whole process of its development into a full-grown tree, is tending towards the full realization of its final cause. In Aristotle's view it is the final cause itself which moves, i.e., by attraction. In the case of the oak tree, its final cause, which is also its formal cause, causes the development of the acorn into the oak tree by drawing up, as it were, the acorn towards the term of its process of development. (Copleston I/2 1962, 55)

The terms "attraction" and "drawing up" make the operation of final causality sound rather like the force of gravity, but Aristotle makes it clear that even the ultimate final cause, the Unmoved Mover of the celestial spheres, moves all the rest "as the object of desire . . . that which appears to be noble." [^27-8) Final causality, in other words, has more in common with Plato's Eros than with Newton's mutual attractions -- and everything to do with *arete*: For a human or any other being to realize the full potential of its form means it has achieved its ultimate end, which is its distinctive *arete* and its happiness as well.

Aristotle claims to have been the first to articulate the principle of final causality. Though "desire" seems incongruous in discussions of acorns and stars, it certainly seems to play a role in human affairs. It has been observed that "of Aristotle's four causes only two, the efficient and the final, answer to the natural meaning of 'cause' in English" (Ross 1966, 73). Teleological explanations are natural to everyday discussions of why we choose to do things -- "I did this because I desired that." Commonplace as they are, however,

teleological explanations for natural phenomena are highly problemmatic:

> It might of course be objected that the final cause, the perfected form of the oak, does not as yet exist and so cannot cause, while on the other hand it cannot cause as conceived in the mind (as the idea of the picture in the artist's mind is said to have causal action), since the acorn is without mind and power of reflection. [Aristotle] would answer, no doubt, by recalling the fact that the form of the acorn is the form of the oak in germ, that it has an innate and natural tendency towards its own evolution. But difficulties might arise for Aristotle if one were to continue asking questions. (Copleston I/2 1962, 56)

In fact, teleological explanations even for human actions and behavior have been considered problemmatic, as the entire program of behavioral psychology attests. That so common a part of our everyday experience of causality should arouse such resistance from scientists is due partly to the paradoxes involved in having a cause precede its effect. And since purposive action must be preceded by some notion of its purpose, scientists feel safe in subsuming it (somehow) under efficient causality (there are questions about how something mental can effect physical, bodily activity; but we'll get to those later). Aristotle certainly didn't help his cause by extending the teleological approach to beings not normally viewed as purposive, such as acorns. But the animus behind scientific reluctance to describe even human behavior in teleological terms can be traced in large part to the transformation of Aristotelian philosophy at the hands of St. Thomas Aquinas in the 13th century.

With Thomas' introduction of the Christian God into Aristotle's system, the notion of "end" assumed a rather more supernatural -- not to say unnatural -- explanatory role. It should be noted that, for Aristotle, the immanence of form in each existing entity implies that each entity is an end unto itself:

> . . . [T]hough he lays great stress on finality, it would be a mistake to suppose that finality, for Aristotle, is equivalent to *external* finality, as though we were to say, for instance, that grass grows in order that sheep may have food. On the contrary, he insists much more on internal or immanent finality (thus the apple tree has attained its end or purpose, not when the fruit forms a healthy or pleasant food for man, . . . but when the apple tree has reached that perfection of development of which it is capable. (Copleston I/2 1962, 55)

I think it's fair to say that what difference there is between Aristotle and Thomas on the matter of final causality stems from their fundamentally different views of the nature of God. Aristotle's Unmoved Mover, which he calls *nous* -- Intellect -- is a completely self-centered being, "thinking of Himself through all eternity" (Aristotle, *Meta.*, L, 9, 1075a11). Unlike the Christian God, *nous* "is not a Creator-God: the world existed from all eternity without having been created from all eternity" (Copleston I/2 1962, 57). He does not intercede in this world and He does not reward man in a life after. Aristotle could hardly agree then with the position laid out by Aquinas, that

> God, who acts according to wisdom, created the world for an end, but that end can be none other than God Himself: He created the world, therefore, in order to manifest His own perfection . . . Creatures have, of course, their proximate ends, the perfecting of

> their natures, but this perfecting of creatures' natures is subordinate to the final end of all creation, the glory of God. . .
>
> . . . [C]onvinced that man has a supernatural final end, and a supernatural final end alone . . . [Aquinas] was bound to place the final goal of man in the next life, not in this . . .
>
> . . . [T]he individual human being has a supernatural vocation and his vocation is not an earthly vocation; . . . [I]t remains true that each human person is ultimately of more value than the whole material universe, which exists for the sake of man, though both man and the material universe exist ultimately for God. (Copleston II/2 1962, 148-50)

This heavy overlay of Final End over the immanent end of each creature's self-perfection marks a shift towards an external finality not found in Aristotle. Aquinas actually manages a fair synthesis of Aristotelian and Christian views, by arguing that "the glory of God, the manifestation of His divine perfection . . . is manifested precisely by the perfection of his creatures" (Copleston II/2 1962, 146). But the intrusion of Godly purposes into explanations of the natural world marked a long step down what was to prove a very slippery slope.

As the Church grew ascendant, and worldly understanding came to depend on the perception of God through a filter of faith, the naturalistic understanding championed by the Greeks and exemplified by Aristotle was eclipsed. The philosophical illumination of the human psyche that burst forth with Plato and Aristotle, of course, was obscured as well. Although Christian thinkers were hardly less concerned with matters of the soul, the shadow of theology inevitably fell over the enterprise. While "Thomas follows Aristotle in treating

the moral and intellectual virtues as habits . . . formed by good acts," and "the rule and measure of human acts" remains reason (Ibid., 126), that happiness which is his ultimate end is now identified with beatitude, the vision of God, and is dependent upon God's grace (Ibid., 120). The grounding of the virtues in God's Will raises the notions of "obligation" and "evil" to a prominence unknown among the Greeks.

Nor was this shadow easily dispelled even by those who later sought to limit the domain of theology, since the soul tended to be left within those limits. Christian humility before the ultimate mysteries displaced Greek pride in the power of reason and the aristocracy of "great souls" (megalopsyche). It is hardly a coincidence that there is no coherent, naturalistic account of human achievement from antiquity till the 19th century.

The 12th century European rediscovery of the Greeks, which prompted Aquinas' synthesis of Aristotelian philosophy with Christianity, did lead nonetheless to a resurgence of scientific investigation in the 13th century (Copleston III/1 1963, 168). Though Aquinas had managed to reconcile philosophy and theology by delimiting their respective objects and methods, his synthesis proved unstable. The world was changing. The opening of trade that brought the Greek texts back from the Near East also brought growing prosperity and a more secular orientation. Nationalism began to flourish; universities sprang up; the printing press was invented; and Latin ceased to be the universal

language of the educated world. Authority was being challenged everywhere. Science was demonstrating the value of firsthand experience. As the natural philosophers and physicists of the Renaissance gained confidence in the power of science to reveal new knowledge, the fitness of final (and especially Final) causality to provide any useful explanations of the natural world came under heavy fire. A critical salvo was launched by Francis Bacon in his *Novum Organon* of 1620, which rejected the authority of traditional ways of understanding the world in favor of those new methods of investigation which were propelling the scientific revolution:

> Bacon counted the teleological mode of regarding Nature as one of the idols, and, indeed, as one of the dangerous idols of the tribe, -- the fundamental errors which become a source of illusion to man through his very nature: he taught that philosophy has to do only with formal or efficient causes, and expressed his restriction of philosophy to physics and his rejection of metaphysics precisely by saying that the explanation of Nature is physics if it concerns *causae efficientes*, metaphysics if it concerns *causae finales*. (Windelband 1958, 401)

While dismissing final causality, Bacon still held to the value of formal causality and considered induction to be a process of careful abstraction leading to the discovery of Forms -- the essential natures of things (Ibid., 384). Bacon understood these Forms to comprise the "simple elements of reality" which alone can provide the foundation for the general axioms that make theoretical explanation of the world around us possible. What he didn't appreciate, despite this implied affirmation of the role of deduction as well as induction in scientific explanation, was the critical importance of mathematics to the new

science (Ibid., 386-7). It was left to his astronomer contemporaries to renew and reform that connection.

The first great discovery here was Kepler's:

> The psychological motive of his research was the philosophical conviction of the mathematical order of the universe, and he verified his conviction by discovering the laws of planetary motion by means of a grand induction.
>
> In this procedure it became evident, on the one hand, that the true task of induction in natural science consists in finding out that *mathematical relation* which remains the same in the entire series of the phenomena determined by measurement, and, on the other hand, that the object, in connection with which this task can be performed by research, is none other than *motion*. (Windelband 1958, 388)

Kepler's emphasis on mathematical relation recalls Pythagoras' discoveries concerning right triangles and harmonics rather than Bacon's ruminations on the Forms of things, and thankfully avoids the Pythagoreans' more esoteric number symbologies. Thus, "modern investigation of Nature was born as *empirical Pythagoreanism*" (Ibid., 387). I suspect this sort of formal approach is, in fact, a better description of what Bateson was proposing than Platonism which tends to focus, like Bacon, more on the forms of things: the "relation which remains the same in the entire series of phenomena" is a good definition of what Bateson calls "pattern." But just as the formal side of the ancient dichotomy was discovering this new strength, it was co-opted and put to the service of efficient causality.

It was Galileo who effectively put to rest the formal side of the "ancient dichotomy." Following through on Kepler's discovery of the mathematical relations between the motions of the planets, "Galileo created mechanics as the mathematical theory of motion:"

> It is extremely instructive to compare the thoughts which [Galileo] presents in the *Saggiatore* with Bacon's interpretation of Nature. Both aim to analyze into their elements the phenomena given in perception, in order to explain phenomena from the combination of these elements. But where Bacon's Induction seeks the "Forms," Galileo's *method of resolution* (analysis) searches out the simplest processes of motion capable of mathematical determination . . .
>
> With this, the victory of the principle of Democritus and Plato, that the sole object which true knowledge of Nature can deal with is what is capable of quantitative determination, was sealed in a completely new form; but this time the principle was applied not to the Being, but to the Becoming or change in Nature. . . . Hence knowledge of all things, in so far as it is accessible for us, consists in tracing back what is perceived to motion of bodies in space. (Ibid., 388-9)

The power of this new, mathematico-empirical approach to natural philosophy was demonstrated most grandly by Newton's hypothesis of gravitation which provided the mathematical theory for the explanation of Kepler's laws (Ibid., 388). The success of this new, more efficient causality might not have led to the forcible submersion of the formal side of the causal dichotomy had it not been for the link, so evident in Thomism, between final causality and Divine creation:

> . . . [T]he new methodical principle of *mechanics* excluded all tracing of corporeal phenomena back to spiritual forces. Nature was despiritualized; science would see in it nothing but the movements of smallest bodies, of which one is the cause of the other. . . .
>
> But with the spirits, *teleology*, also, was obliged to give place. The explanation of natural phenomena by their purposiveness always

> came ultimately in some way or other to the thought of spiritual creation or ordering of things, and so was contradictory to the principle of mechanics. (Ibid., 400-1)

The new science needed to be aggressive in establishing its turf. It was not so much opposed to religion as it was insistent on defining and restricting it to the metaphysical realm, and taking the physical world under its own jurisdiction. Formal causality itself might have survived its guilt by association with teleology (even despite the sometimes near-identity of formal and final causality in Aristotle and Thomas), had not the idea of cause itself "*acquired a completely new significance* through Galileo:"

> According to the scholastic conception . . . causes were *substances* or things, while effects, on the other hand, were either their activities or were other substances and things which were held to come about only by such activities: this was the Platonic/ Aristotelian conception of the *aitia* [cause]. Galileo, on the contrary, went back to the idea of the older Greek thinkers, who applied the causal relation only to the *states* -- that meant now to the *motions* of substances -- not to the Being of the substances themselves. Causes are motions and effects are motions. (Ibid., 410)

Thus formal causation was not so much refuted as obviated, made moot, to be left behind along with so many other matters of merely "scholastic" interest. Formal explanation came to be identified with the tautologies of definition and logico-mathematical proof. Bateson didn't argue with that identification. What concerned him were the consequences that a limited model of mechanical causality and a limited set of mathematical tools, at that very beginnings of modern science, would have on the development of the biological and behavioral sciences over the next 300 years (Bateson 1972, xxi).

The Mind/Body Problem -- Bateson's New Bridgehead

The success of the physicists in applying the mathematics of motion to the efficient explanation of natural phenomena did not extend so easily to the explanation of organic life or the human psyche, though numerous attempts were made beginning with Descartes. His approach was based, in keeping with the science of the time, not on the analogy to energy but to mechanical motion:

> For just as the investigation of Nature from Galileo to Newton directed its energies toward finding out the simple fundamental form of corporeal motion, to which all complex structures of outer experience could be reduced, so Descartes desired to establish the fundamental forms of psychical motion, out of which the multiplicity of inner experiences would become explicable. . . . Thus Descartes derives the whole host of particular passions, as species and sub-species, from the six fundamental forms of wonder, love and hate, desire, pleasure, and pain . . . (Windelband 1958, 412)

Descartes, who first brought the mathematical method to philosophy and who wished "to see all final causes kept at a distance from the explanation of nature" (Ibid., 401), borrowed the mechanistic analogy but balked at an outright physical explanation of consciousness. God remained the capstone of Descartes' philosophy and the identification of consciousness with souls was hard for him to shake. Though he was content to view animals as machines -- complex automata -- he maintained that minds belonged to another realm of being altogether, the *res cogitantes* rather than *res extensae* -- thinking substance rather than extended substance.

This was the infamous Cartesian dualism, which necessitated all those misguided attempts at a "bridge between behavioral data and the fundamentals of physical and chemical science" which Bateson bemoaned. It also led Descartes to introduce a new kind of cause to Aristotle's list, the *causa occasionale*, by which thinking substance and extended substance were enabled to act on one another (Ibid., 415). This idea was so fraught with difficulties, however, that it was soon forgotten. The dualism remained.

Bateson describes the split between mind and body as "the battleground of science, especially of biology" (Bateson 1993, 176). His later writings refer freely to his own wrestlings with the problem, and in the *Forward* to *Steps*... he acknowledges that his "personal inspiration has owed much to the men who over the last 200 years have kept alive the idea of unity between mind and body" (Bateson 1972, xii). He claimed that the solution to the problem finally came to him in late 1969, while preparing a lecture on Korzybski and reviewing the relation of map to territory. It was this insight that revealed the underlying coherence of all his previous work and led him to believe that the outlines of a "new scientific territory could be defined" (Bateson 1972, xvi).

Bateson's name for the science that would map this territory is expressed in the title of his book, *Steps to an Ecology of Mind*. The title of his next book, *Mind and Nature: A Necessary Unity*, states the

conviction underlying it. Bateson was, in effect, developing a radical new understanding of mind in opposition to the understanding expressed in the Cartesian dualism.

Having now reached back "to the very beginnings of scientific and philosophic thought" as Bateson suggested, and reviewed the development of the "ancient dichotomy of form and substance" up to Descartes, we are ready at last to explore Bateson's new territory of mind and recross the bridge to the fundamentals by which he got there. Descartes is a good place to start.

Descartes is, in many ways, the *bete noir* of Bateson's thought. His mind-body dualism is only part of the problem, as it is systematically connected to other Cartesian ideas and principles, all of which Bateson found destructive:

> It is not an accident and it is a very curious juxtaposition that this same man around 1700, Descartes, created three of the major tools of our contemporary thinking. One, the split between mind and matter. Two: the Cartesian coordinates, the graph -- you put time on the bottom and you make a variable. And, three: the *cogito* -- "I think, therefore I am." Those three things go together and have simply torn the concept of the universe in which we live into rags. (Bateson 1992, 305)

In fact, Descartes died in 1650. Bateson is nonetheless correct in his estimation of the magnitude of Descartes' influence on modern thought. He is the seminal figure in modern philosophy, inasmuch as the problems posed by Cartesian philosophy provide the starting point for almost all that has come after. And yet Bateson's inclusion of the

Cartesian coordinates -- the basis of the analytic geometry which seems Descartes' most enduring achievement -- on his list of destructive influences still comes as a surprise. It is instructive to see why he includes it.

Bateson appreciates the contribution that Cartesian diagrams have made -- he applauds them as "a model which has been extraordinarily profitable in thinking about things like planets and temperatures and even perhaps populations" (Bateson 1993, 175). His complaint is that their success in these applications has led to their use on problems for which they are entirely inappropriate:

> You cannot claim to have no epistemology. Those who so claim have nothing but a bad epistemology. And every description is based upon, and contains implicitly, a theory of how to describe. The Cartesian coordinates contain a theory of how to describe, and for many purposes, I believe, it is an inappropriate and dangerous theory -- one which in the end leads to various sorts of quantification of "things" which probably should be regarded as patterns, not quantities. (Ibid., 178)

He gives the interesting example of our fingers and toes:

> You see, you can be wrong in describing the anatomy of a human being when you say he has five bananalike objects on the end of each limb, because, you see, he might not have "five fingers" on the end of each limb, but "four angles between fingers." The question is, what is there in the genetic injunctions, the prescriptive descriptions, for how to make a hand? Is there a number at all? "Five, or "four," or whatever? Is there conceivably a rule of symmetry there? (Ibid., 178)

The "rule of symmetry" might, for instance, enjoin first the angling off of an opposing bone (the thumb); then another angling off

within the main bone between what would be, in effect, the ring and middle fingers; then a further angling off of each of those. By automatically focusing on quantities, as the tradition that comes down to us from Galileo and Descartes would have us do, we overlook the patterns of bilateral symmetry and "topological logic" that actually govern morphogenesis (Ibid., 180). By focusing so much on discrete quantities, Bateson believed we had lost our feel for the patterns that govern -- and connect us to -- the living world.

More to the point, for Bateson, the Cartesian coordinates reduce time to a simple, linear quantity -- plot time on the x-axis, distance on the y-axis, and the linear relation between them is velocity. This fits perfectly with the assumption of unidirectional efficient causality and the principles of motion in mechanics. It does not fit so well, however, with the circular causal systems and recursive systems that constitute biological process:

> The . . . mechanistic point of view is a point of view derived from the science which grew out of Newton and Locke and became the Industrial Revolution and became *the* science. Essentially, how to get across those arcs and how to ignore the circuit structure. In a sense, in introducing the circuit structure in the bottom [material] half of that iceberg, I am blowing all hell out of the Newtonian and Lockean materialistic point of view. The Newton-Locke mechanism is related, in fact, to the separation of mind and body, mind and matter. (Ibid., 304)

For Bateson, mind is immanent in certain organizations of matter, arising out of the interactions -- the passing of information, of differences responded to and transformed as they are passed on --

through part to part of a system of circuitous pathways. What is critical about circular as opposed to linear causality is that what triggers the response isn't an impact but a difference. This was the insight that Bateson experienced while preparing for his Korzybski lecture:

> . . . I suddenly realized that of course the bridge between map and territory is *difference*. It is only *news of difference* that can get from the terri-tory to the map, and this fact is the basic epistemological statement about the relationship between all reality out there and all perception in here: that the bridge must always be in the form of difference. (Ibid., 218)

Bateson attributes the initial discovery of this bridge to two psychologists working in Leipzig in the 1830's, Ernst Weber and Gustav Fechner:

> . . . Weber discovered that perception was related to ratios of intensity in the "stimulus." . . . He discovered, for example, that the ability to perceive the difference between two weights is based on the ratio between them and not upon the subtractive difference. So if you can discriminate between two ounces and three ounces, you will also discriminate six ounces from four, and indeed three pounds from two pounds. Now that discovery, that the first and most fundamental step of mental life -- the receipt of news from the outside -- depends upon difference, and that the differences are in fact ratios, is basic for epistemology . . . We deal in what mathematicians call derivatives, and not in quantities -- in ratios between quantities but not in quantities. This, you see, is a bridge between mind and body, or between mind and matter, but, at the same time it differentiates mind from matter. (Ibid., 309)

Pitch, of course, is also a matter of ratios. So is our perception of colors. The notion of ratios is important because it subtly argues against the Freudian metaphor of psychic energy: energies are

quantities and, as such, additive; ratios are not sums but products -- hence, multiplicative.

Drawing on a distinction borrowed from the ancient Gnostics and developed by the psychologist Carl Jung, Bateson develops this distinction into two separate "worlds" of explanation, the *pleroma* and the *creatura*:

> [The pleroma] is a world in which things are not alive. They're billiard balls, they're stones, they're astronomical objects, and so forth, and they respond to forces and energy exercised upon them. One billiard ball hits another, and the second one responds with energy derived from the first...
>
> But the world of living things [creatura] is different. Living things respond to the *fact* of being hit. There are facts as distinct from forces. There are ideas. And these facts are essentially non-physical. What you respond to, what you can see, is difference. You can see that this is different from that. (Ibid., 273)

If you ask where the difference lies between this and that, the answer can only be that it lies neither in this nor in that, but in their relation to each other and to a third thing, a receiver. That relationship has neither mass nor velocity, yet it has an effect. Paraphrasing Kant, Bateson notes:

> . . . [T]here are a million facts (*Tatsache*) in a piece of chalk, but a very few of these become effective. Most of them do not make a difference. In the more modern language of information theory, we may say that information is *difference which makes a difference* and that of the infinite number of differences immanent in this chalk very few become information. (Ibid., 309)

The grounding of Bateson's solution to the mind-body problem in the conceptual framework of information theory is intriguing because Shannon's equation for the measure of information has itself been proposed as the bridge between two closely related worlds of thought:

> Shannon had set out to solve a specific problem in radio and telephone communication, and the solution he arrived at, by strict, deductive methods, was essentially identical to the formula for entropy that had been established in the physics of Victorian times. That equation was a mathe-matical expression of the tendency for all things to become less orderly when left to themselves; for energy to undergo certain transformations in the natural course of events, making it more disorganized . . .
>
> Shannon's entropy equation suggested, at the very least, a powerful analogy between energy and information. Entropy was the connectiving link. In this way it unified two worlds of thought . . . (Campbell 1982, 18-9)

That entropy, as a measure of disorganization, should be inversely related to information, which is a measure of organization, makes intuitive sense. It is reported that Norbert Wiener, the founder of cybernetics, was known to walk into a room "puffing at a cigar, and say 'Information is entropy.' Then . . . turn around and walk out again without another word" (Ibid., 21). As Bateson knew Wiener rather well, he was certainly aware of these possibilities. On the other hand:

> The idea of a relationship between information and entropy, implicit in the early days of the theory, is still questioned by scientists today. Some are doubtful that the connection is any more than formal, or that it will lead to any deeper insights . . . It is interesting to note, however, that Claude Shannon, the chief originator of information theory, thinks differently. (Ibid., 52)

It seems certain that Bateson did too. He says explicitly that "difference, of course, carries no energy. It is of the realm of

entropy and negentropy [negative entropy or ordering]" (Bateson 1992, 201). I believe he hoped that difference would play the key role that Von Neumann proposed as critical for the scientific development of the behavioral sciences, namely, a correlate of the Newtonian particle, "that elegant fiction upon which physics was built" (Ibid., 152).

Working out the details of the relationship between information and entropy, however, was not Bateson's task. It was enough for him that the concept of difference was essential to the definition of information, the theory of which was expressible in the form of scientific laws. That satisfied his own requirement that explanation provide a "mapping of data onto fundamentals," meaning propositions which are either tautological or scientifically lawlike and true (Bateson 1972, xix). The connection between information and entropy probably accounts for Bateson's inclusion of the Second Law of Thermodynamics on his select list of exemplary scientific fundamentals as well (Ibid., xix).

Beginning with the idea of difference, Bateson goes on to develop his concept of mind. He provides numerous examples of systems responding to difference, and particularly to the difference provided by something that is <u>not</u> there, such as the letter from the IRS in response to the taxes you didn't pay, or the absence of food which activates an amoeba. This is important to Bateson because it underscores the immaterial nature of difference and because it

indicates that difference operates digitally rather than analogically. This is basic to information theory as it is to the artificial intelligence of computers. The smallest "difference which makes a difference," that which information theorists call a "bit" is defined this way:

> . . . [A] choice between two equally possible messages. It is a "yes" or "no" answer to the hypothetical question: "Is it this one?" The answer "yes" resolves all uncertainty. . . . The answer "no" also resolves this uncertainty. (Campbell 1982, 75)

Bateson points out that, unlike efficient causes, these digital determinants do not -- can not -- impart energy to the responding system which, instead, draws on its own energy resources in responding:

> . . . [I]nformation travels, usually, where energy already is. That is, the recipient, the organism receiving information -- or the end organ or the neuron -- is already energized from its metabolism" (Bateson 1992, 219).

Difference, in other words, "does not provide the energy, it only triggers the expenditure of energy" (Ibid., 164). And as it triggers energy, it moves through the system:

> We talk then about differences and *transforms of difference*. Obviously a neural impulse is a very different sort of thing from a difference in light or a difference in temperature, which is what triggers the end organ. When such differences are transformed in successive ways through the system, mind becomes a very complex network of pathways, some of them neural, some of them hormonal, some of them of other kinds, along which difference can be propagated and transformed. (Ibid., 164-5)

Each transform along the circuit represents, in effect, a mapping of the territory presented to it, in Korzybski's phrasing: the light bouncing of the object (the ultimate territory, the thing-in-itself) presents a transform (a mapping) in terms of wave lengths to the retina, which in turn maps that presentation in neural discharges, passing it on to the brain, where it is mapped again, and so on and on:

> . . . [A]s a difference is transformed and propagated along its pathway, the embodiment of the difference before the step is a "territory" of which the embodiment after the step is a "map." The map-territory relation obtains at every step. (Bateson 1972, 455)

We've considered this process of mapping from the perceptual side, but Bateson argues that it carries over to the motor side, as well:

> . . . [W]e can follow the chain forward. I receive various sorts of mappings which I call data or information. Upon receipt of these I act. But my actions, my muscular contractions, are transforms of differences in the input material. And I receive again data which are transforms of my actions. We get thus a picture of the mental world which has somehow jumped loose from our conventional picture of the physical world. (Ibid., 455)

Indeed, says Bateson, "the mental world is only maps of maps of maps, ad infinitum" (Ibid., 454). The mind, in other words, can be viewed as a dynamic set of interconnected systems for internal and external mapping.

It would be fair to ask whether, in delineating these two worlds of explanation Bateson hasn't effectively replicated the Cartesian dualism. He admits that, "in fact, this is the same old dichotomy between mind and substance" (Bateson 1972, 456). But in this case

there is no need for a *causa occasionale*, for there are not two separate substances, mind and matter, but only matter organized in such a way as to respond to difference. The thermostat which is made up of metal and plastic and energized by electricity is not a mysterious mental substance, but "the whole system is a sense organ which is triggered by temperature difference" (Ibid., 456). Mind is immanent in matter.

What distinguishes the thermostat or the governor on a steam engine from what we usually think of as mind is basically its level of complexity. But the difference in complexity here is not so much quantitative as qualitative: a mind is complex enough to evidence various sorts of recursiveness, that is, response to itself. Obviously, the thermostat is capable of a rudimentary sort of recursiveness in the form of feedback, by which its previous operation of warming the room affects its subsequent operation of shutting off. Another type of recursiveness, however, involves "the case in which some property of a *whole* is fed back into the system" (Bateson 1992, 220). If the thermostat could determine not only that its thresholds for turning on or off were reached but that its thresholds might comfortably be adjusted upward or downward as it adjusted the seasons, then we would be seeing further signs of what might be called mind, in the form of a rudimentary self-awareness. Bateson suggests "that a special sort of holism is generated by feedback and recursiveness" of this second kind (Ibid., 221):

> Autonomy -- literally *control of the self*, from the Greek *autos* (self) and *nomos* (a law) -- is provided by the recursive structure of the system. Whether or not a simple machine with a governor can control or be controlled by itself may be disputed, but imagine more loops of information and effect added on top of the simple circuit. What will be the content of the signal material carried by these loops? The answer, of course, is that these loops will carry messages *about* the behavior of the whole system. . . That is, the messages become messages about the previous lower level. From this to autonomy is a very short step. (Bateson 1979, 126-7)

The recursiveness generated by messages about messages leads to consideration of another criterion for mentality, namely that "mind operates with hierarchies and networks of difference" (Bateson 1992, 221):

> It seems to me very clear and even expectable that end organs can receive only news of difference. Each receives difference and creates news of difference; and, of course, this proposes the possibility of differences between differences, and differences that are differently effective or differently meaningful according to the network within which they exist. This is the path toward an epistemology of gestalt psychology, and this clumping of news of difference becomes especially true of the mind when it . . . evolves language and faces the circumstance that the name is not the thing named, and the name of the name is not the name. This is the area in which I've worked very considerably in constructing a hypothetical hierarchy of species of learning. (Ibid., 221)

And thus Bateson's discussion of mind leads right back to the discussion of character, which is a form of second level meta-learning, and to the inadequacies of the standard psychological theories -- which built a bridge "to the *wrong half* of the ancient dichotomy -- to explain it.

There is, to be sure, no way that the Cartesian coordinates could analytically describe systems of circular and recursive interaction.

And on the mechanical assumptions governing Descartes' *res extensae*, there is no way that mind could be immanent within its organization. Bateson is no doubt correct in blaming the assumptions embodied in Cartesian philosophy for skewing all scientific research towards the model of physics for centuries after. And, as Bateson suggests, this may not have been in the best interest of the life sciences generally. Though the model has proved effective in biology at the biochemical level, it has certainly not succeeded in the behavioral sciences and has undermined their credibility in the process.

And what about that phrase for which Descartes will always be remembered -- his "cogito, ergo sum?" On Bateson's interactive assumptions, there is simply no way that a mind could establish its being apart from relationship -- any more than there could be a map without a territory. Moreover, and this has been pointed out by others, it is only by virtue of inflection that the *cogito* implies an *ego*. Should the act of thinking require a subject (and this is not so clearly the case), it certainly needn't be that ghost inside the machine bounded by our skin.

This might seem no more than a philosophical concern but, in fact, Bateson's concept of mind entails a radical non-individuation principle with important implications for his thinking, including his view of characterological learning. It may help to summarize the distinguishing characteristics of Bateson's solution to the mind-body

problem because, taken together, he suggests that they provide also the general criteria for mental process:

> The criteria of mind that seem to me to work together to supply this solution [to the mind-body problem] are here listed . . .
>
> 1. *A mind is an aggregate of interacting parts or components.*
> 2. *The interaction between parts of mind is triggered by difference...* 3. *Mental process requires collateral energy.*
> 4. *Mental process requires circular (or more complex) chains of determination.*
> 5. *In mental process, the effects of difference are to be regarded as transforms (i.e., coded versions) of events which preceded them.*
> 6. *The description and classification of these processes of transformation disclose a hierarchy of logical types immanent in the phenomena.* (Bateson 1979, 92)

This is a clear and, I think, very plausible solution to the mind-body problem. Bateson emphasizes that these are not only necessary but also sufficient criteria for attributing mentality:

> . . . [I]f any aggregate of phenomena, any system, satisfies all the criteria listed, I shall unhesitatingly say that the aggregate is a *mind* and shall expect that, if I am to understand that aggregate, I shall need sorts of explanation different from those which would suffice to explain the characteristics of its smaller parts. (Ibid., 91)

The peculiar consequence of making these the sufficient criteria for mind can be appreciated when we ask whether a computer is then a mind -- can it think? Bateson's reply is "no," but not for the usual reasons:

> We used to argue about whether a computer can think. The answer is, "No." What thinks is a total circuit, including perhaps a computer, a man, and an environment. Similarly, we may ask whether a brain can think, and again the answer is "No." What thinks is a brain inside a man who is part of a system which includes an

> environment. To draw a boundary line between a part which does most of the computation for a larger system and the larger system of which it is a part is to create a mythological component, commonly called a "self." In my epistemology, the concept of self, along with all arbitrary boundaries which delimit systems or parts of systems, is to be regarded as a trait of the local culture . . . (Bateson 1992, 202)

This is a radical concept and a difficult one to grasp. It may help to consider Bateson's stock example of a more fully described thinking system -- "a man felling a tree with an ax:"

> Each stroke of the ax must be corrected for the state of the cut face of the tree after each chip flies. In other words, the system which shows mental characteristics is the whole circuit from the tree to the man's sense organs, through his brain to his muscles and the ax, and back to the tree. This is not the unit which psychologists are accustomed to considering but it is the unit which systems theory will force them to consider.

The example itself is not very persuasive, perhaps. But if we focus less on the computational contributions of the brain and think more about the adaptive process at work -- the learning going on -- we would have to admit that the muscles, at least, are very much involved. Over time, intellectual direction gives way to what seems like a direct line from eyes to hands. "Muscle memory" begins to assert itself. Like riding a bike, it takes time to learn but, once learned, it takes little or no thought. That is not to say it is mindless.

Granted that learning is something that involves not just the brain but the larger nervous and muscular systems, consider the case of a horse and rider. There is a process of learning and mutual adjustment

that goes on between these two that is arguably better described as one learning system involving two brains -- or rather two nervous and muscular systems, for again there is little thought involved. And why would we want to leave the tendons and ligaments out of this adaptive system -- or even the bones of the two creatures -- since these two will adapt over time to riding (bow legs being just one example).

Consider ants or other social insects: is there any good reason to consider the individual ant as the unit of thought and learning rather than the hive? The biologist Lewis Thomas argues the opposite:

> A solitary ant, afield, cannot be considered to have much of anything on his mind; indeed, with only a few neurons strung together by fibers, he can't be imagined to have a mind at all, much less a thought. He is more like a ganglion on legs. Four ants together, or ten, encircling a dead moth on a path, begin to look more like an idea. They fumble and shove, gradually moving the food toward the Hill, but as though by blind chance. It is only when you watch the dense mass of thousands of ants, crowded together around the Hill, blackening the ground, that you begin to see the whole beast, and now you observe it thinking, planning, calculating. It is an intelligence, a kind of live computer, with crawling bits for wits. (Thomas 1974, 12-3)

Thomas is willing to take the next step as well, and consider the analogy to human societies:

> Nobody wants to think that the rapidly expanding mass of mankind, spreading out over the face of the earth, blackening the ground, bears any meaningful resemblance to the life of an anthill or a hive. Who would consider for a moment that the more than 3 billion of us are a sort of stupendous animal when we become linked together? . . .
>
> But there is just that one thing. About human speech. (Ibid., 103-105)

> [W]e spend our time sending messages to each other, talking and trying to listen at the same time, exchanging information. This seems to be our most urgent biological function; it is what we do with our lives. . . . Information is our source of energy; we are driven by it. . . .
>
> Joined together, the great mass of human minds around the earth seems to behave like a coherent, living system. (Ibid., 131-3)

While Thomas and Bateson did meet at least once (in 1975), it is unlikely that either had any influence on the other's work (Lipset 1980, 284). Their ideas on this matter, though arrived at by very different routes, nonetheless seem wholly congruent. Bateson took that line of thinking a step farther, by arguing that the entire process of evolution evidenced signs of immanent mentality. It would take us too far afield to reconstruct that argument here; suffice to say that the argument bears more resemblance to the Gaia hypothesis, that the earth itself functions effectively as a super-organism, than to the Christian scientism of Teilhard de Chardin.

The importance of this non-individuated concept of mind for our purposes is that if character is learned as Bateson suggests, through social interactions, then it is arguably less a characteristic of the individual than it is of his society or culture. This recalls Ruth Benedict's psychological descriptions of culture types, but is in fact rather different. Benedict's typology pertained primarily to more primitive, homogeneous cultures than our own, while Bateson "debated the pertinence of the concept of national character to modern nations" (Ibid., 166):

> It was argued that no uniformity of experience existed in such politically contrived states. Such countries were rather diversities of sex, ethnic, and occupational differentiation which had considerable deviance from norms and cultural flux. Bateson dismissed all challenges to the validity of the idea of national character by referring to a familiar holistic assumption. Both individuals and communities were necessarily organized units "such that all [their] 'parts' or 'aspects' [were] mutually modifiable and mutually interacting . . .
>
> As long as sufficient time was permitted to elapse so that habits of behavior could form between groups, the ethnically synthetic quality of modern nations would not hinder national character analysis. (Ibid., 167)

In other words, groups within a society interact through the interactions of their members. If one group tends towards dominance and another towards submission in its dealings with the other, that does not mean they have opposing character traits but that together they display the single, binary trait of dominance/submission. Indeed, it would probably be truer to say that individuals' character traits are shaped by such group interactions than the other way around, since subsystems tend over time to adjust to the requirements of the supra-system. I would even hazard to guess (since he nowhere addresses the question) that Bateson would explain the development of character traits at the social level in terms of sytemic interactions that included the physical environment: if man-felling-tree is a systemic whole which functions as a mind and adapts neural and muscular subsystems to its purpose, surely the physical environment of the Eskimo or the Polynesian would play some role in the development of their character.

This is a far cry from the "climactic determinism" that was once fashionable in anthropology and still occasionally rears its head today (as in Professor Jeffries' now infamous distinction of "sun" and "snow" people), since climate is only one, perhaps minor, factor. But it is similar to Bateson's caution that the "unit of survival" in evolution is not "an individual or family line or a species" but an "organism in environment" (Bateson 1992, 171); that in the evolution of the horse, for instance, "the horse isn't the thing that evolved. What evolved actually was a *relationship* between horse and grass" (Bateson 1992, 275-6).

It is interesting to reflect on how Bateson's theory of character development itself develops over time. Those ideas which first took shape in his work on schismogenesis in *Naven* are never so much given up as given over to larger and larger systems of theory: they are nested at first in a theory of learning, which in turn gets nested in a theory of mind, which itself gets nested in a theory of evolution. It proceeds from level to level, each meta to the last -- an examplar of the principles he was so earnest to communicate.

What he wound up with is in many ways a radical position, but a coherent one I think, well grounded in established scientific theory. In terms of the criteria for adequate explanation we have laid out so far, it would be fair to say that Bateson's approach to character development is both broad in scope (it claims, at least, to cover all

such phenomena) and profound in its depth, emerging as it does from a theory of the fundamental nature of mind and biological evolution. Like the Greek approach, it has important implications for social analysis as well. By Bateson's own criterion of explanatory adequacy, that the theory connect with scientific fundamentals, it also succeeds to a degree unusual in the behavioral sciences.

The problems Bateson's approach runs into, at this general level, stem from the fundamental ambiguities in his presentation. He does not offer us a systematically laid out theory but rather decades of work in progress, organized mostly as articles on discrete and diverse topics. Virtually all are theoretical rather than empirically oriented; but some are recognizably scientific papers while others are ruminations on problems of methodology that are more philosophic than scientific. The attempts at synthesis that mark his later writings are predominantly philosophical (and increasingly exhortational) but, like those earlier articles, only loosely connected to the philosophical tradition. It is hard to determine, in the end, where it all fits and where or how a proper critique should begin.

Bateson's eventual identification of his field of research as "natural epistemology" is a good example of how the incongruence of his ideas with prevailing worlds of academic discourse worked to inhibit scholarly critique. His approach is decidedly more philosophical than, say, Piaget's -- it draws on experimental observations without

pretending to be determined by them; yet it has little to do with what philosophers consider epistemology (which appears to require no observable phenomena at all). Thus he's an odd duck in both camps. In addition, Bateson was working largely with what scholars in both fields would consider derived ideas -- McCullough's work on frog perception, Russell's theory of types, etc.; so he was not readily viewed as an "original thinker" demanding serious consideration from either. (Though his double bind theory of schizophrenia did draw scholarly critique, it was largely misunderstood by therapists and its epistemological implications were entirely ignored.) The range of his theoretical pursuits made it inevitable that he would find himself, at times, a bit out of his depth; that is the perennial complaint of specialists about generalists. The result is that Bateson's epistemological theories have attracted not the slightest critical attention from either psychologists or philosophers.

What tends to be missed is the fact that Bateson did not rely on derived ideas as might a popularizer or amateur. He used them rather like an artist might use found materials in a collage or assemblage: the art is in the relationships these materials are brought into. The problem is to understand and evaluate the nature of Bateson's theoretical art. It is not scientific theorizing of any recognizable sort -- it is neither empirically analytic nor mathematically deductive in any obvious way; nor can it be considered properly philosophical

inasmuch as its methods are not explicitly addressed and carried out in any systematic fashion.

The lack of an explicit methodology makes the usual methods of critique problemmatic: his results are not easily duplicated, his procedures are not easily assessable by comparison to some methodological standard. That's not to say that his approach isn't methodical, only that it isn't formulaic or reproducible. I think it would be fair to call Bateson's method intuitive: a series of increasingly bold abductions -- discerning common patterns -- leading towards a final, over-arching perception of the "pattern that connects:" a pattern that Bateson thought might eventually encompass even the holy. But intuition is not inviting to critique, the merest hint of mysticism leads to scientific excommunication, and the difficulty in critiquing Bateson's theory is certainly a weakness.

At this point, nonetheless, we do have the main threads of Bateson's theoretical filigree in hand. What we don't have, still, is a clear idea of how Bateson would use this theory to explain the development of an abiding commitment towards achievement. While we can see how Bateson would recast into relational terms the standard Greek explanation in terms of the desire for honor, we saw too that this was not an especially compelling explanation.

We can also see why Bateson could not support anything along the lines of Plato's solution: the mode of explanation in cybernetics and in the world of pleroma generally is not teleological but formal. Individual humans may harbor dreams of immortality -- maybe, at some time or at some level everyone does. But it is difficult to see how that could be a functioning parameter of all living systems, as Plato argued. The reproductive urge can certainly be explained without it, and limiting the explanation to the human world robs it of considerable metaphysical weight. It then becomes just another explanation for the Greeks' preoccupation with honor -- instead of a concern for self-worth in this world, we have a concern for an undying memory in ages to come. By looking not at intentions but at the schismogenic structure of the social interaction that defines the pride/admiration relationship, Bateson substitutes formal for final explanation and crosses a new bridge to the formal side of the ancient dichotomy.

The Psychologies of Achievement

Since Bateson nowhere provides a specific explanation for achieving behavior -- just hints and ideas in addition to his more general explanation for character development -- our best bet for constructing an explanation consistent with his approach might be to do as he did, drawing freely on the thinkers that went before him and reviewing their insights from a cybernetic perspective. It makes sense, actually, to

resume our examination of the general history of thought from the period just after Descartes, inasmuch as the foundations of modern science that were laid then helped shape all the explanations of character development that followed. We have a handle on Bateson's basic intellectual tools at this point and an understanding of his general theory of character development. By using these to eliminate those positions in the historical debates he could not have held, and to reconfigure those he might, we may hopefully arrive at the same territory he would himself have settled on.

The Two Traditions

An important consequence of the Cartesian dualism, pernicious in some ways but healthy in others, was the splitting off of two distinct traditions in what was to become modern philosophy. Descartes' stark distinction between intellectual and extended substance raised difficult questions about how mind and body could possibly affect each other, which in turn raised questions about how knowledge and action based on knowledge was possible. The two traditions originated in the split between the "Rationalists" and "Empiricists," those who argued that certain ideas were innate in our minds versus those who argued that all ideas were the product of our sensory experience. These two traditions became geographically concentrated on the European continent and in Great Britain respectively and, though both gave way to a

variety of other approaches in the succeeding centuries, the split between Continental and Anglo-American philosophy persists along the same lines even today. Each of the traditions generated a distinctive approach to psychology and major contributions to our understanding of achieving behavior, and so it is to these we turn now.

The centuries after Descartes spawned numerous, ingeniously varied attempts to bridge the dualism that established efficient causality as the explanatory paradigm for the natural sciences while relegating mind and teleology to the metaphysical plane. Hobbes in England and Pierre Gassendi in France were the first of many who tried to reduce the mental world entirely to physical terms. Hobbes, who worked the idea out in greater detail, proposed to locate the basis of all mental phenomena in elemental sense impressions, by whose "combination and transformation memory and thought also come about" (Windelband 1958, 413):

> [This view] . . . cannot be characterised much otherwise than as an *anthropological materialism*; for it aims to understand the entire series of empirical psychical activities as a mechanical process connected with the bodily functions . . . [I]n doing so [Hobbes] became the father of the so-called *associational psychology*. (Ibid., 412-3)

Descartes' psychology had demonstrated a crude mechanism in trying to reduce mental life to psychic motions. Hobbes' mechanism was more sophisticated in that, while recognizing the role of motions and

impacts in sense impressions he was considering also the combination of simple ideas into complex ones. Though the analogy wasn't available then, it was rather like the progression from physics to chemistry.

Hobbes was determined to restrict philosophy solely to naturalistic research, and under the heading of natural philosophy he included the study of natural law and the state. His philosophy of the state was built, like Plato's and Aristotle's, on his theory of human nature. Unlike theirs, his theory offered little support for the striving after arete:

> The English philosopher found the fundamental, all-determining character-istic of human nature in the *impulse toward self-preservation or egoism*, the simple, self-evident principle for explaining the entire volitional life. (Ibid., 434)

Prior to the social contract that formed the state (a logical fiction that goes back to Occam in the Middle Ages), humans in the state of nature were engaged in a war of all against all and life, in Hobbes' immortal words, was "nasty, brutish, and short:"

> [T]o escape this the state was founded as a contract for the mutual warrant of self-preservation. The social need is not original: it only results necessarily as the most efficient and certain means for the satisfaction of egoism. (Ibid.)

A state founded on this basis might make life longer and less nasty, perhaps even less brutish; but it is hard to see how it might ennoble that life and inspire it towards a commitment to achievement.

A mind that arises solely in sensation seems destined here to fall into sensualism.

Hobbes' emphasis on the psycho-genetic role of sense impressions was nonethless picked up and popularized by John Locke and became a staple of Enlightenment thinking, spreading even to France and Germany. There was a note of religious skepticism in the background of much of this thinking and an attack on the notion of soul. Voltaire's "skeptical sensualism became the fundamental note of the French Enlightenment" (Ibid., 456), his influence extending even to otherwise religious souls, like Etienne Condillac, a priest whose impatience with Church dogma parading as science led him to compose one of the 18th century's most compelling arguments for an empirical psychology:

> Condillac develops the theory of associational psychology in connection with the fiction of a statue, which, equipped only with capacity of sensation, receives one after another the excitations of the different senses which are added to it, and by this means gradually unfolds an intellectual life like that of man. (Ibid., 456)

These early attempts at an associational psychology based on efficient causality alone all seemed quite crude and unconvincing and certainly laid no groundwork at the time for an understanding of character or an explanation of commitment to achievement. The central role that Bateson ascribes to social relationships in the development of character were difficult even to conceive between the social atoms that hammer out the state in contract theory. The successes of the naturalistic approach pioneered by Hobbes and his fellow empiricists

would not be realized until the development of an experimental science of psychology in the nineteenth century. Meanwhile, the foundations for a rather different psychology were being laid out by the rationalists.

Final causality, which seems so necessary to the explanation of intellectual life, was firmly relegated -- indeed restricted -- by Enlightenment thinkers to the dubious metaphysical realm, where God still held sway. Spinoza, to be sure, tried to devise a metaphysics stripped of all teleology, even in connection with God; but Spinoza was a rationalist who believed mind was formed not only of the association of sense impressions but of innate ideas, as well. He still sought something beyond the efficient causality of the material world. His rationalism is evident not only in the geometric form his system takes, beginning with definitions, axioms, and postulates and proceeding via logical proofs to conclusions punctuated with the geometricians' "*Q.E.D.*" (Latin, *quod erat demonstrandum* -- which was to be proved); but also in the prominent role played by formal causality, in the form of logical implication, in his psychology. There are parallels and contrasts to both Plato and Bateson here which are worth examining.

Spinoza resolved Descartes' mind/body dualism by declaring that mind and body were only two attributes of the single infinite, Divine system which is Nature:

> . . . [T]he one system can be looked at from two points of view: it can be conceived under the attribute of thought or under the attribute of extension. To every mode under the attribute of extension there corresponds a mode under the attribute of thought, and this second mode Spinoza calls an "idea".
>
> . . . [T]he human body is man considered as a mode of the attribute of extension, and the human mind is man considered as a mode of the attribute of thought. They are, then, two aspects of the one thing. The Cartesian problem of "interaction" between soul and body is, therefore, no real problem. (Copleston IV 1963, 228-9)

Beginning from an infinite unity rather than from finite individuals also neatly circumvents Plato's problem with the "participation" of material beings in abstract forms. In viewing mind and the Divine as somehow immanent rather than transcendant to the natural world, Spinoza sounds rather like Bateson, only less complicated. But, as Copleston points out, there is something rather facile in his solution:

> . . . [T]he problem is not eliminated simply by framing one's language in such a way that the problem does not arise in this language. For it has to be shown that the data are more adequately expressed or described in this language than in any other. (Ibid., 229)

And it must be said that Spinoza's language does not always seem adequate to the data. Like Plato, for instance, Spinoza's epistemology and ethics are hierarchical, and he has a notion of the perfection of one's nature. His emphasis on the underlying unity of thought and extension suggests that the perfection of the mind corresponds to perfection of the body, which hardly seems the case. Spinoza's solution also leads to a rather extreme position on causality:

> We read in the *Ethics* that "the order and connection of ideas is the same as the order and connection of things" (Spinoza, *Ethics* P. II, prop. 7). In the proof of this proposition he remarks that its truth is clear from the fourth axiom of the first part of the *Ethics*, namely, "The knowledge of effect depends on the knowledge of cause, and involves the same" (*Ibid.*) . . . It is arguable, of course, that even if we grant that to know an effect adequately involves knowing its cause, it does not follow that the causal relation is akin to the relation of logical implication. (Copleston IV 1963, 218)

But this is apparently where Spinoza's thought led him. Windelband defines Spinozism as "a consistent identification of the relation of cause and effect with that of ground and consequent:"

> The geometrical method knows no other causality than that of the "eternal consequence"; for rationalism, only that form of the dependence which is peculiar to thought itself, namely, the logical procedure of the consequent from its antecedent reason, passes as in itself intelligible: . . . real dependence also should be conceived neither mechanically nor teleologically but only logico-mathematically. (Windelband 1958, 418-9)

So while Spinoza insists on the analysis of extended things solely in terms of motion and efficient causality, and of ideas in terms of logical implication, it is "misleading," Copleston suggests, to conclude that there are "two orders, two chains of causes, namely, the order of bodies and the order of ideas" (Copleston IV 1963, 228). There is only one order, which we can conceive in two ways; and ultimately, since the universe unfolds of logical necessity from the essence of God-as-Nature, the formal has priority. Efficient causality maps logical implication, rather than the other way around. Spinoza's monism thus puts him at odds not only with his scientific contemporaries but with Bateson, whose position is that mind, while

immanent in the material order, operates according to a different set of rules, a different and entirely non-parallel order of causality.

It's not surprising that the hierarchal ethics which follows from Spinoza's rationalist position is, like Plato's and Aristotle's, geared towards the intellectual life and closely tied to his epistemology. Unlike the Greek philosophers, but in keeping with Hobbes whom he follows here in many respects (Windelband 1958, 434), Spinoza begins from an elemental egoism: "Everything, in so far as it is in itself, endeavours to persist in its own being" (Spinoza, *Ethics* P. III, proposition 6). The individually existing thing "as it is in itself" refers to its essential nature, which is the source of all its activity:

> [T]his endeavour [of each thing to persist in its being] Spinoza calls *conatus*. Nothing can do anything else but that which follows from its nature: its essence or nature determines its activity. The power or "endeavour", then, by which a thing does what it does or endeavours to do what it endeavours to do is identical with its essence. . . . [T]he truth of the statement is, according to him, logically demonstrable. It can be shown that every thing tends to preserve itself and to increase its power and activity. (Copleston IV 1963, 245)

This all seems dryly philosophical, no doubt, and perhaps a bit sophistical as well inasmuch as Spinoza seems to move all too easily from self-preservation, which is comfortably Darwinian, to the increase of power which is uncomfortably Machiavellian. But the move is logically justifiable since passively suffering the actions of others (and thus putting one's self at risk) equates to loss of power and active control over oneself; and what seem like dry distinctions in

Spinoza turn out to have interesting consequences for the understanding of intellectual achievement.

For Spinoza, the actions of other men, objects or entities upon us affect not only our bodies but, since body and mind are just two sides of the same coin, our ideas as well:

> The human body is affected by other bodies, and every modification or state so produced is reflected in an idea. Ideas of this kind are more or less equivalent, therefore, to ideas derived from sensation, and Spinoza calls them ideas of imagination. They are not derived by logical deduction from other ideas, and in so far as the mind consists of such ideas it is passive and not active. (Copleston IV 1963, 237)

Plato's world of becoming and of mere opinion is plainly visible in the back-ground here. And, as in Plato, the way to the Good lies along the path of true knowledge:

> The perfection of the mind, according to Spinoza, increases in proportion as the mind is active, that is to say, in proportion as the ideas of which it consists are logically connected with one another and are not simply reflections of changing states produced by the action of external causes on the body. (Ibid., 246)

Spinoza calls such logically connected ideas the "ideas of reason," and argues that as we move towards this higher level of knowledge we are at the same time increasing our own power of activity, our ability to direct our actions rather than respond to the action of others. In other words, knowledge is power. And as we increase in knowledge and power, we increase the perfection of our nature and this gives us pleasure:

> [I]t follows from Spinoza's definitions that everyone necessarily pursues pleasure. This does not mean that everyone takes pleasure as the consciously conceived end or purpose of all his actions: it means that one necessarily seeks to preserve and perfect one's being. And this perfecting of one's being, when looked at in its mental aspect, is pleasure. (Ibid.)

There are echoes of Aristotle here, too, only without the overlay of final causality whereby each thing seeks to realize its form and thus find its fulfillment. But while Spinoza examines at length the emotions in relation to understanding and to memory, he is strangely silent about character development and even habit formation. He assumes an associational psychology in those passive aspects of mind affected by sensation, which suggests habituation; but the constellation of habits into character types is simply not addressed. Neither has he much to say about education.

So what we have, in effect, is an explanation for the pursuit of intellectual achievement without foundation in a theory of character development. Spinoza makes it clear that the pursuit of understanding, though it may not issue in public works, is basic to our nature. Since this ties in to Spinoza's entire metaphysic and epistemology, one can certainly say the explanation shows depth. But its limited scope is revealed not only in its silence on other character types, but in its silence on achievements other than intellectual. The idea that physical perfection is achieved through intellectual understanding, which is implicit in the *Ethics*, is simply indefensible; and the idea that one might pursue physical perfection as a means to intellectual

clarity, while plausible in some cases, certainly doesn't address the typical professional athlete.

The problem of how to inculcate and encourage the desire for intellectual achievement is not addressed because it is our nature to pursue it; and yet it becomes unclear, if that is the case, why some do and some don't achieve it. As a strict determinist, of course, it would be hard for Spinoza to specify how education could make a difference -- though he acknowledges that humankind "must seek the assistance of . . . [a] Theory of Education," and that "a means must be devised for improving the understanding" (Spinoza 1955, 7). Strict determinists, of course, find it very difficult to be consistent.

In addition to these difficulties, Bateson would have found Spinoza's assumption of a pre-societal "state of nature," like Hobbes' war of all against all, to be anthropologically and epistemologically absurd, which it certainly is. For Bateson, learning develops through relationships and it is the kinds of relationships we enter into that determines our character. The notion that the ideal human character type should be pursued through what seems like a process of extricating oneself from relationships into some sort of logical autonomy, would have struck him as entirely misdirected: we are always in relationships, even if they are relationships of aloofness and avoidance.

In Spinoza's own day, his views were widely "criticized and belittled:"

> Indeed, the philosophers of the French Enlightenment in general, though they respected Spinoza as a man . . . did not extend their respect to his philosophy. They regarded it as obscure sophistry and a juggling with geometrical and metaphysical terms and formulae. (Copleston IV 1963, 266)

His resuscitation awaited the German romantics, and it is to the German philosophers we now turn. In Germany, the connection of metaphysics with matters of spirit and final purpose continued to be thought important and worth defending. Towards the end of the 17th century, Leibniz, the founder of that distinctly German tradition in philosophy which dominated thought on the Continent at least through Nietzsche's time, managed to forge a major "reconciliation of the mechanical and teleological views of the world" (Windelband 1958, 420). His solution was to acknowledge that efficient causality rules in the world we experience, but to argue that God chose for the world appear to us in this way; for despite all appearances, it reflects God's purposes entirely:

> The ultimate goal of his philosophy is to understand the mechanism of the cosmic processes as the *means* and *phenomenal* form by which the living content or import of the world realizes itself. (Ibid., 420-1)

Leibniz' God is the Christian God. Unlike Spinoza's Nature, He is a Creator God, transcendent and benevolent. And there is not just one substance in Leibniz' metaphysics but innumerably many of them, each an

incorporeal "metaphysical point" without extension, which he called a *monad*. Their incorporeality aside, these are rather like Democritus' atoms, being simple, indivisible unities which combine to form the compound, visible substances of everyday life. How unextended monads combine into extended bodies is a question whose answer, according to Copleston, "seems to me extremely obscure" (Copleston IV 1963, 305). I can do no better.

Although they are the building blocks of the material universe, the monads are also like souls. Not only are they immaterial, they are active:

> Each substance or monad is the principle and source of its activities; it is not inert but has an inner tendency to activity and self-development. Force, energy, activity are of the essence of substance. . . .
>
> . . . [I]t involves what Leibniz calls a *conatus* or positive tendency to action, which inevitably fulfills itself unless it is hindered. (Ibid., 303)

But for the fact that Spinoza arrives at individual beings by working his way down from the one substance, while Leibniz arrives at them by working up from innumerable substances, there seems to be much they could agree on here. Both postulate a conatus as the source of activity, though Leibniz goes further in stipulating it as the very essence of what it means to exist. And both view the conatus as a process of self-development. Leibniz even shares some of Spinoza's general epistemological principles. Copleston, quoting from Leibniz' letters, notes that "Monads 'are not pure forces: they are the

foundations not only of actions but also of resistances or passivities, and their "passions" lie in confused perceptions'" (Ibid., 304).

And like Spinoza, Leibniz too fosters reader impatience with what seems like "obscure sophistry and a juggling with . . . metaphysical terms." But Leibniz marked a major shift in our understanding of being and substance, one that has been pervasive in science as well as philosophy:

> [Leibniz] could no longer think "substance" as characterised merely by an attribute of unchangeable existence, and could no longer think its states merely as modifications, determinations, or specifications of such a fundamental quality: cosmic processes or change became again for him *active working (Wirken)*; substances took on the meaning of *forces*, and the philosophical conception of God also had, for its essential characteristic, creative force. This was Leibniz' fundamental thought, that this creative force evinces itself in the mechanical system of motions. (Windelband 1958, 421)

It helps to remember that Leibniz was not a cloistered mystic but a leading figure of the Enlightenment, who devised his infinitesimal calculus in response to the problems posed by Galileo's analysis of motion. His basic insight "that the essential nature of bodies . . . consists not in extension, nor yet in their mass (impenetrability), but in their capacity to do work -- in force" reflects a fairly modern scientific sensibility (Ibid.).

But the introduction of the transcendent creator God into Leibniz' scheme brought his differences with Spinoza -- and many of his contemporaries -- to a head. For while both Leibniz and Spinoza agree

that efficient causality rules the physical, visible world, and both agree that there is another order of causality which tracks it, for Leibniz that parallel causality is not formal but final:

> Leibniz did not, of course, deny that on the phenomenal level there is what we call efficient or mechanical causality. . . . But we must distinguish between the physical level at which this statement is true and the meta-physical level at which we speak about monad[s]. . . . The monads are, to use Leibniz' term, 'windowless.' . . .
>
> Though each monad is a world apart, it changes in harmonious correspondence with the changes in all other monads according to a law or harmony pre-established by God. . . . [T]here is no direct causal interaction between monads . . . "[They] act according to the laws of final causes, by appetitions, ends and means" (Leibniz, *Monadology* 79). (Copleston IV 1963, 312-4)

In other words, God has arranged the universe so that mechanical causality seems to hold sway -- and this is the only way for science to understand it; but in fact, every being operates solely according to its own internal principle and it is only God's pre-established harmony that meshes all their individual activities so that efficient causality can explain it.

Why would God resort to such an elaborate ruse? According to Leibniz, the dominion of efficient causality in our world, while complete, isn't at all necessary and could have been otherwise. Among all the possible worlds He might have chosen, God only chose to create this one because "it contains the least and the fewest evils":

> The contingency of the world consists in the fact that it exists, not with metaphysical necessity, but through a choice exercised among many possibilities; and since this choice proceeds from the

> all-good will of God, it is unthinkable that the world is any other than the best. (Windelband 1958, 492)

I've taken some time with Leibniz' peculiar metaphysics for several reasons, none of which involve his explanation of the development of character or of a commitment to achievement -- in these matters, there seems little difference between his views and Spinoza's: "The monad is the more perfect . . . the more it shows its activity in clear and distinct representations" (Ibid., 506). And the same criticisms can be made of his position. But Leibniz is one of those pivotal figures who can only be passed over at the risk of constantly referring back to him. His identification of substance with force, for instance, helped launch German idealism which in turn laid the foundation for Freud's psychic forces. It also led to Nietzche's theory of the will-to-power, which we will examine later.

Leibniz' optimism regarding God's pre-established harmony in this "best of all possible worlds" also proved influential, though not in the way he intended. While teleology (and the role of the Christian God in human affairs) had been on the defensive all through the age of the Englightenment, the faith of many in "the perfection and adaptedness of the world's arrangement" was profoundly shaken by what came to be known as the Lisbon earthquake (Ibid., 493). On the morning of All Saints' Day, 1755, a devastating earthquake struck Portugal and North Africa:

> [I]n six minutes thirty churches and a thousand homes were demolished, fifteen thousand people were killed, and fifteen thousand more were fatally injured, in one of the most picturesque capitals in the world. . . . Why had the Great Inscrutable chosen so Catholic a city, so holy a festival, and such an hour -- when nearly all pious citizens were attending Mass?
>
> . . . Where now was Leibniz' "best of all possible worlds"? Or Pope's "Whatever is, is right" -- or his pretense that "all partial evil" is "universal good"? (Durant 1965, 720-1)

The rush of the theologians to justify this disaster as part of God's plan sickened Voltaire who responded first with his scathing poem "On the Lisbon Disaster," and then with his famous satire, *Candide*. In that book, a parody of Leibniz named Dr. Pangloss, a professor of "metaphysico-theologo-cosmoloni-gology" is made to utter such absurdities as this:

> "Tis demonstrated," said he, "that things cannot be otherwise; for, since everything is made for an end, everything is necessarily for the best end. Observe that noses were made to wear spectacles; and so we have spectacles. Legs were visibly instituted to be breeched, and we have breeches. . . . [A]nd as pigs were made to be eaten, we eat pork all the year round." (Voltaire 1946, 2)

While this was hardly fair to Leibniz, it was a near deathblow to any serious efforts to construct a metaphysics in which a transcendent God pursues His purposes in the universe.

The last remaining reason for examining Leibniz' legacy is the odd fact that Humberto Maturana, one of the co-authors of Warren McCulloch's paper "What the Frog's Eye Tells the Frog's Brain" (which strongly influenced Bateson's episte-mology), and Francisco Varela, whom Bateson cites along with Maturana for contributions to our

understanding of recursiveness, have in recent years come to embrace what has been described as a Leibnizian position on the description of living systems:

> [They] have undertaken the construction of a systematic theoretical biology which attempts to define living systems *not* as they are objects of observation and description, nor even as interacting systems, but as self-contained unities whose only reference is to themselves. . . . Maturana goes on to define cognition as a biological phenomenon; as, in effect, the very nature of all living systems.
>
> The radical shift in standpoint here requires an imaginative leap and the abandonment at the outset of the standard characterizations of living systems in terms of function or purpose, or of organism-environment relations, or of causal interactions with an external world. . . . In effect, Maturana and Varela propose a theoretical biology which . . . from the 'point of view' of the system itself, is entirely self-referential and has no 'outside', Leibnizian for our day. (Stafford Beer, in his preface to Maturana 1980, v)

The idea that cognition is "the very nature of all living systems" is shared by Bateson, as is the implication that we have no access as cognitive systems to any thing-in-itself outside us -- that our minds work only through maps of maps of maps, ad nauseum. The idea of "entirely self-referential" systems -- monads in effect -- certainly seems incongruous with Bateson's emphasis on interaction and relationship; but, as we've seen with Spinoza and Leibniz, it appears but a short step from postulating two orders of causality to establishing the internal principle as primary from the "point of view of the system itself." And if Bateson's emphasis on relationship seems to preclude entirely self-referential systems, it should be noted that his concept of supra-organismic minds can be extrapolated into an argument for a single supra-mind connecting the entire living world and

its environment -- a scientific pantheism with some parallels to Spinoza's. Bateson's plans and notes for his last book, *Where Angels Fear to Tread*, completed and published posthumously by his daughter Catherine Bateson, in 1990, was expressly intended to explore the possibility of resurrecting a sense of the Holy on cybernetic principles. It would take us too far afield to pursue this parallel any farther, but it should be kept in mind how alien Bateson's position really is to the standard empirical tradition, and how reminiscent it is, at times, of the rationalist philosophies of the Continent.

Leibniz' most enduring and direct influence stems, again, from his role in the development of German idealism, a role mediated (ironically enough) by the withering skepticism of David Hume. Hume followed the empiricists' program of analyzing all knowledge in terms of sense impressions to its ultimate, unlikely conclusions. His skepticism even called into question the sancrosanct notion of cause and effect itself. He argued that a scrupulous examination of our immediate experience would have to allow that our notion of efficient causality was simply the result of a "constant conjunction" between certain perceptions, lacking any logical or empirical necessity beyond our habitual expectations.

Hume went on to demolish the concepts of substance, self, and even induction, arguing that none of these is warranted by what is empirically given or logically demonstrable. The metaphysical realm

was thereby demolished and, so far as most English speaking philosophers coming after him were concerned, that was the end of it. Science would explain the world while philosophy restricted itself to explaining how explanation was possible -- an oversimplification to be sure, and compromised by the occasional maverick or acolyte of Continental thought; but not an unfair description, I think, of English speaking philosophy after Hume.

German Philosophy

On the Continent, however, the Leibnizian legacy was picked up by Kant. Well aware of Hume's metaphysical devastation, Kant adopted what he called the "critical method," the much watered-down result of which persists today in the "constructivist" view of knowledge. According to Kant, causality (like substance, the self, and even space and time) was a framework imposed on sensations by the subject (not the self we experience, but the "transcendental ego") as a condition for having any experience at all. The "thing-in-itself," apart from the forms of our perception and understanding, was unknowable. While Kant thus dismissed most of Leibniz' metaphysical speculations as a "dream," he agreed with him that things are not what they seem, and that the phenomenal world we experience is a product of mind. And he agreed that science is the only valid way of understanding and explaining the world as presented to us, the world of nature:

> . . . [I]n Nature substance is permanent, and . . . its quantum can be neither increased nor diminished; . . . all changes take place according to the law of cause and effect, and . . . all substances are in thorough-going reciprocity or inter-action. (Windelband 1958, 546)

Though Kant insisted that all scientific explanation of nature depends on efficient causality and a mechanical view of the universe, he did allow that there were aspects of the world which we could not explain in this way:

> The first of these is *Life*. A mechanical explanation of the organism has not only not yet succeeded, but it is, according to Kant, impossible in principle. All life can only be understood through other life. . . . [W]e shall always be obliged to bring into our account the peculiar nature of organized matter and its capacity of reaction, as a factor incapable of reduction. . . .
>
> This explanation is impossible because the essential nature of the organism is that the whole is determined by the parts just as the part is determined by the whole, - that every member is both cause and effect of the whole. This *reciprocal causality* is incomprehensible mechanically: the organism is the miracle in the world of experience. It is this inter-related play of forms and forces which in the organism makes the *impression of the purposive*, or of adaptation to an end." (*Ibid.*, 565-6)

This limitation on the effectiveness of mechanical explanation permits us to employ teleological explanation only as a heuristic principle. It cannot claim to provide scientific, objective explanation; and we can never profess to be "satisfied with this in an individual case"; but we can use it in "seeking out the mechanical connections by which this purposeful vitality realizes itself in each particular case" (*Ibid.*, 566).

Kant's claim that reciprocal causal relations were impossible to explain mechanistically was not entirely true, of course. But his connection of reciprocal causality with the appearance of purposiveness was the clearest explanation of the nature of teleological explanation to that time, and a remarkable anticipation of the cybernetic solution that followed almost 150 years later.

Kant's approach managed to turn Enlightenment skepticism and materialism on its head. Instead of reducing our mental universe to physical terms, he had reduced the physical universe to a construction of the mind. Although Kant himself agreed with Hume on the impossibility of metaphysics, since we have access only to our own experience and never to the thing-in-itself, his examination of the logically necessary conditions for having experience at all opened a whole new arena for speculation.

The direction that German philosophy took after Kant found its impetus in the contradiction at the heart of Kant's concept of the thing-in-itself. While nothing supposedly can be said about it, the fact that it is there at all indicates that somehow it is the cause of our experience. But how can it cause us to have experience when Kant's philosophy specifies that a category like causality applies only within our experience and can not be applied outside it? It wasn't long before the contradiction was spotted and exploited:

> This [contradiction] was first seen by *Jacobi*, when he confessed that without the presupposition of realism one could not enter the Kantian system, and with the same could not remain in it; . . . If, therefore, [the Kantian philosophy] will not fall into nihilism or absolute skepticism, the transcendental idealist must have the courage to assert the "strongest" idealism; he must declare that only phenomena are. (Windelband 1958, 573-4)

As this idea worked its way through German philosophical circles, what emerged was a concept of Absolute Mind or Reason which, in trying to think itself, creates a subject-object relationship containing enough inherent contradic-tions to drive it (dialectically) on to more and more adequate conceptions, recreating not only Kant's entire pantheon of philosophic categories but all the structures of existing reality along the way, until finally arriving at the full self-consciousness which is its final realization.

This idealistic philosophy found its most complete expression in Hegel. Hegel proposed that the Absolute was none other than the Christian God who, in His process of becoming fully self-cognizant, drove world history toward the creation of philosophers in whose thought the self-consciousness of the Absolute finds its completely conscious realization. The history of philosophy is the history of Absolute Thought thinking itself: "Hegel's history of philosophy is thus a philosophy of the history of philosophy" (Copleston VII, 289). And if his was not the ultimate philosophy, it was at least the highest stage that God had yet reached in thinking Himself. It was perhaps the most grandiose philosophical conception ever, and certainly one of the most obscure.

It is not hard to understand the idealists' interest in Spinoza. Spinoza's one infinite substance is similarly identified with God, in which the ideal and the material are reconciled. And Spinoza's substance (no less than its modes, the individually existing beings like ourselves) is essentially active, unfolding its own essence in a formal, logical development. Like Leibniz' philosophy, however, idealism was thoroughly teleological and generally accomodating to Christianity. And it contributed only a bit more than its rationalist predecessors to our understanding of the development of character or the sources of commitment to a life of achievement.

It did, however, lay some important groundwork for others to advance our understanding of psychology. Hegel, in particular, by taking an historical approach to the life of the mind, and by approaching history itself as a developmental process instead of just an ongoing sequence of events, was certainly a pivotal figure on the way to a modern, developmental psychology.

Perhaps their most important contribution to the questions that concern us here, however, stem from the idealists' connections to the German romantic movement. While those connections were sometimes tenuous (Hegel, for one, was often impatient with the vagueness of romantic ideas), the influence of the movement is evident in the prominent place of art and aesthetics in the idealists' philosophies (Copleston VII 1963, 29). Their exaltation of the creative personality

-- the "genius" -- was a particularly intriguing expression of that affinity.

Somewhere over the course of the centuries stretching from Renaissance Humanism to Englightenment skepticism, Christian humility had lost its lustre. The rise of a class of artists and artisans who made their living off their works and their reputations certainly promoted the glorification of talented individuals, and their numbers clearly abounded in that period. Renaissance men like da Vinci and Michelangelo, and prodigies like Newton and Mozart gave the notion of some special "genius" a boost, and Goethe provided a literary model of the type for the tide of German romantic poets who came after him. Their idealist philosopher contemporaries were prey to the same infatuation.

Rarely in the history of philosophical thought was the aesthetic sensibility so prominently featured as in the transcendental idealism of Friedrich Schelling. Schelling began from the common idealist notion that "Absolute Reason" is essentially an "eternal act of self-knowledge" (Ibid., 136), and that its initial consciousness of self is, in fact, a "production of itself as object" (Ibid., 144). This "production of itself" is nothing less than the creation of nature. And that same productive intuition that created the natural world finds further expression and, ultimately, intuition of itself through the creations of the artist:

> Genius is not reducible to a technical proficiency which can be imparted by instruction: the creative artist is, as it were, the vehicle of a power which acts through him . . . In other words, the same power which acts without consciousness in producing Nature, the unconscious poetry of the Spirit, acts with consciousness in producing the work of art. That is to say, it works through the consciousness of the artist. And this illustrates the ultimate unity of the unconscious and the conscious, of the ideal and the real. (Ibid., 150)

Schelling, in effect, did for artists what Hegel had done for philosophers: he made them the instruments of the Absolute's search to realize itself. In the work of genius, the Absolute found its own reflection.

The romantic notion of "genius" helped refocus attention on human achievement, though the idealist notion of a Universal Reason expressing itself through "world-historical individuals" (Hegel's term) did little to help explain the psychology behind it. For Schelling, instruction was not only ineffective in producing genius, it was ineffective in producing character.

Schelling accepts the notion which we met already in Spinoza, that a person's choices of action proceed from his "intelligible essence," but he goes a step further by identifying that essence with his character and suggesting that it is freely chosen:

> . . . [Schelling] does not wish to say that it is God who predetermines a man's acts by conceiving him in the eternal Idea. Hence he is forced to depict a man's intelligible character as due to an original self-positing of the ego, as the result of an original choice by the ego itself. He can thus say both that a

> man's actions are in principle determined and that they are free. They are necessary; but this necessity is an inner necessity, imposed by the ego's original choice: . . . "This inner necessity is itself freedom, the essence of man is essentially *his own act*." (Ibid., 165)

There are premonitions of existentialism in this idea that character is essentially chosen through one's freedom to act, and indeed Kierkegaard was, for a time, one of Schelling's students (Lowith 1964, 113). How exactly, one might originally choose to become achievement-oriented in one's future choices is, of course, never addressed.

More immediately significant for our purposes was Schelling's introduction of the notions of the unconscious and the irrational within human personality. The existence of unconscious elements in the mind was implicit in the basic idealist notion of Universal Mind seeking to become fully conscious of itself through the dialectical process. Schelling identifies those unconscious elements, both at the Universal and the individual levels, with the irrational impulses and urges that underlie the will:

> There is in man a dark foundation, as it were, the unconscious and the life of urge and natural impulse. And it is on this foundation that personality is built. Man is capable of following sensual desire and dark impulse rather than reason: he is able to affirm himself as a particular finite being to the exclusion of the moral law. But he also has the power of subordinating selfish desire and impulse to the rational will and of developing his true personality. (Ibid., 163)

The old associational psychology, which Hobbes had relied on completely and which Spinoza had limited to those passive aspects of mind which were driven by the sensations of the body, is here let go entirely. Spinoza had described the ethical path as one that leads from reacting to the inadequate and passive perceptions of sense to acting on the basis of the clear and distinct ideas of reason, from outer to inner direction, and from sensual confusion to rational clarity. For Schelling, the ethical path is more inward and less obviously epistemological. It is a matter of will:

> We talk about human beings as persons, but personality, Schelling maintains, is not something given from the start, it is something to be won. "All birth is birth out of darkness into light," and this general proposition is true of the birth of human personality. . . . He can do this, however, only by strife, conflict and sublimation. For the dark foundation of personality always remains, though it can can be progressively sublimated and integrated in the movement from darkness to light. (Ibid., 163)

There is a battle within us (and within the Absolute) between a higher and lower will, a rational will that obeys universal law (Kant's categorical imperative) and an unconscious, egoistic will, founded in "natural impulses" and "dark urges." Rationalizing those impulses and urges -- that is, subjecting them to reason and sublimating them to more noble endeavors -- is the path towards a fully human, virtuous personality. The identification of substance with mind and of mind with will thus forged a distinctly Continental tradition in modern thought -- and not just in philosophy. We have all the elements here

of a very different sort of psychology, as well, one which is as far removed from mechanistic associationalism as Freud is from Pavlov.

It would take some time, however, for the potential of this new approach to psychology to be developed. The dialectical development of Universal Mind had real pitfalls when used as an analog for the contingent historical development of individuals. It did help shift attention from the role of reason to the role of the will, however, and thus from conscious ideas to the unconscious and to feelings and impulses. This led to a more empirical, experimental strain of Continental psychology in the mid-19th century called "voluntarism" (Windelband 1958, 637-8), which was the milieu from which Freud developed his theories.

It was increasingly obvious to most 18th century thinkers that a variety of other factors besides philosophical logic needed to be considered for the understanding of persons. As psychology was among the last disciplines to break away from philosophy, it is understandable that biological and pseudo-biological concepts like natural inheritance, physiology, and the press of "national character" initially seemed more important than personal history and education in determining an individual's potential and limitations. The practice of animal husbandry and breeding was well established at the time, though Mendel had yet to supply the theory behind it. And so the limitations

-- and biases -- of early 19th century science were often apparent in their discussions of character.

An interesting example of this can be found in Schopenhauer's essay "On Genius," published in 1851. Schopenhauer is typically cited as a progenitor of voluntarism (Windelband 1958, 637), as he was the first to reduce Kant's thing-in-itself directly to the will. Like Schelling, Schopenhauer locates genius primarily in relation to the arts, and his definition is closely tied to the assumptions of his philosophical position:

> Talent is a merit to be found in the greater versatility and acuteness of discursive rather than of intuitive knowledge. The person endowed with talent thinks more rapidly and accurately than do the rest; on the other hand, the genius perceives a world different from them all, though only by looking more deeply into the world that lies before them also, since it presents itself in his mind more objectively, consequently more purely and distinctly. (Schopenhauer 1956, 376)

The distinction between talent and genius is plausible (that's the sort of thing philosophers do best), though it leaves ample room for Schopenhauer's notorious biases to intrude, as in his dictum: "Women can have remarkable talent, but not genius, for they always remain subjective" (*Ibid.*, 392). In keeping with the rising empirical tide in psychology, Schopenhauer draws heavily on the science of his day for an explanation of the generative conditions for genius -- an account as remarkable for its wrongheadedness as for its specificity:

> Mainly the brain . . . must be of unusual development and size, especially broad and lofty; on the other hand, its dimension in

> depth will be inferior and the cerebrum will preponderate abnormally in proportion to the cerebellum. Very much depends undoubtedly on the shape and formation of the brain as a whole and in its parts, but our knowledge is not yet sufficient to determine this accurately, although we easily recognize the form of a skull that proclaims a noble and exalted intelligence . . . Cuvier's brain weighed five pounds; the normal weight is three. In contrast to the preponderance of the brain, the spinal cord and nerves must be unusually slender. A finely arched, lofty and broad skull of thin bone must protect the brain without in any way cramping it. The whole of this quality of the brain and nervous system is the inheritance from the mother; . . . But this is quite inadequate for producing the phenomenon of genius, unless there is added as the inheritance from the father a lively, passionate temperament, manifesting itself somatically as unusual energy of the heart, and consequently of the blood circulation, especially towards the head. (Schopenhauer 1966, 392-3)

Ludicrous as this may seem today, it should be recalled that the practice of removing, weighing, and measuring the brains of great men persisted well into the 20th century and that the remaining pieces of Einstein's brain "now rest in a Mason jar packed in a cardboard box marked "Costa Cider" and housed in an office in Wichita, Kansas" (Gould 1982, 151). And while today we know this to be an inadequate explanation, progress in explaning intelligence remains slow.

If the science and philosophy of the 1800's were finding it difficult to explain intelligence, it should come as no surprise that the explanation of character was proving elusive as well. It is a testament to the influence Freud has had on our century that what seems to us the obvious importance of childhood experience on the development of character and personality was not generally recognized at that time. The role of inheritance was certainly appreciated, though not well understood. Again, quoting from Schopenhauer:

> . . . [E]veryday experience teaches that, with procreation, the combined seed of the parents transmits not only the characterististics of the species, but those of the individuals also, as regards the bodily qualities; . . . Whether this holds good of mental (subjective, internal) qualities also, so that these too are transmitted from parents to children, is a question that has often been raised, and almost always answered in the affirmative. More difficult, however, is the problem whether it is possible to distinguish what belongs to the father and what to the mother, what is the mental and spiritual inheritance coming to us from each of our parents. If we throw light on this problem by means of our fundamental knowledge that the *will* is the true inner being, the kernel, the radical element in man, while the intellect is the secondary, the adventitious, the accident of that substance, then before questioning experience we shall assume . . . that man inherits his moral nature, his character, his inclinations, his heart, from the father, but the degree, quality, and tendency of his intelligence from the mother. (*Ibid.*, 517)

The key words here, of course, are "before questioning experience we shall assume;" but Schopenhauer was not taking a radical philosophical position here, simply reflecting the opinions of his time. And he finds more than enough corroboration for his assumptions in everyday experience:

> Thus, for example, [you] will find the special tendency to tell lies, peculiar to many people, equally present in two brothers, because they have inherited it from the father. (*Ibid.*, 518)

That kids learn to lie from being lied to (by either parent) never seems to have occurred to folks in an era where biology was coming into ascendancy and children were to be seen and not heard.

The gathering emphasis on will, irrationality, and the unconscious in 19th century German philosophy and psychology found its most powerful expression in the work of Friedrich Nietzsche. Considered

(along with Kierkegaard) one of the originators of existentialism, his focus on the individual helped free him from the preconceptions of his idealist predecessors. He immodestly -- but accurately -- considered himself "a psychologist without equal" (Nietzsche, *Ecce Homo*, trans. Kaufmann 1968, III, 5). Freud was an admirer of Nietzsche (as well as of Schopenhauer, who was himself a major influence on Nietzsche) and readily acknowledged that "his premonitions and insights often agree in the most amazing manner with the laborious results of psychoanalysis" (Kaufmann 1966, 382n). Nietzsche employed and developed many of the basic concepts of later psychiatry, including repression, sublimation, internalization, and projection. In fact, Freud acknowledged a direct debt to Nietzsche for his concept of the Id (Ginsberg, *"Nietzschean Psychiatry,"* in Solomon 1973, 295).

Nietzsche's psychology benefited both from his rejection of the idealists' focus on a universal mind or will operating through individuals and from his related rejection of the grand, systematic approach. His foremost biographer and translator in English, Walter Kaufmann, suggests that "Nietzsche's relation to Hegel somewhat resembles that of Leibniz to Spinoza" (Kaufmann 1966, 210). His thought returns always to individuals, and his aphorisms and short essays lend themselves to thought experiments, ruminations on a vast range of topics, fresh starts, and apparent contradictions. As a result, he is one of the most misunderstood and misinterpreted of all philosophers.

In his thinking about mind and causality, and about the primacy of interactive relationships we also find remarkable parallels to Bateson's thought, though couched in a very different idiom. These parallels are close enough to suggest that had Bateson seriously tackled the question of achieving behavior, his conclusions on that subject also might have paralleled Nietzsche's in some interesting ways. This is all the more remarkable, considering that Bateson's thinking is based in genetics, cybernetics, and information theory -- three sciences that didn't even exist when Nietzsche wrote (Mendel's work was published in 1865 but ignored until Bateson's father came to advocate it in 1900 -- the year Nietzsche died). I'll try to draw out those parallels here.

Like Hegel, Nietzsche understood his thought as the final end towards which all the long history of philosophy before him had been reaching; unlike Hegel, he perceived the endpoint he represented not only as the culmination but as the destruction of all that went before. For Nietzsche rejected not only the *Geist* of Hegel but the *cogito* of Descartes -- he rejected the very idea of a subject. He likewise rejected the idea of material objects, as well as the efficient causality that presupposed them. In short, he rejected the notion of Being:

> Formerly, alteration, change, any becoming at all, were taken as proof of mere appearance, as an indication that there must be something which led us astray. Today, conversely, precisely insofar as the prejudice of reason forces us to posit unity, identity, permanence, substance, cause, thing-hood, being, we see

> ourselves somehow caught in error, compelled into error. (Nietzsche, *Twilight of the Idols*, trans. Kaufmann 1954, III 5)

Nietzsche thought of these "prejudices of reason" as necessary fictions -- as the kinds of error "without which a certain species of life could not live" (Nietzsche, *Will to Power*, trans. Kaufmann 1968, 493). Obviously, we couldn't function in this world without assuming these "fictions." We couldn't even comprehend or discuss our world without them. What is left to the universe after unity, identity, etc. are removed? Not just nothing, obviously; but, according to Nietzsche, not just chaos, either:

> If we eliminate these additions, no things remain but only dynamic quanta, in a relation of tension to all other dynamic quanta: their essence lies in their relation to all other quanta, in their "effect" upon the same. (*Ibid.*, 636)

These "quanta" are forces in relation to other forces, distinguishable only by the quantity of their power, measured "by the effect [they] produce and that which [they] resist" (*Ibid.*, 634). Nietzsche is struggling against the constraints of language to speak of centers of force and activity without any implication of permanence or identity. These are forces essentially in flux, but having for at least a time some power to produce effects and to retain that power in the face of all the other forces affecting it.

There is no way of talking about this process without employing metaphor. Nietzsche realizes that to talk about effects is to implicitly re-introduce the notion of causality, and that causality in

turn implies some "thing" to serve as cause. He insists that, in truth:

> [T]here is no 'being' behind doing, effecting, becoming; 'the doer' is merely a fiction added to the deed. The popular mind in fact doubles the deed; when it sees the lightning flash, it is the deed of a deed: it posits the same event first as the cause and then a second time as its effect. Scientists do no better when they say "force moves," "force causes," and the like . . . (Nietzsche, *Genealogy of Morals*, trans. Kaufmann 1968, I 13).

In other words, the force exists only in its effects. If we are going to speak of effects and use the language of causality, however, our "methodological conscience" should insist that we not "assume several kinds of causality as long as the experiment to get along with a single one has not been pushed to its final limit" (Nietzsche, *Beyond Good and Evil*, trans. Kaufmann 1968, 36).

The mechanists made a similar commitment, but Nietzsche agrees with Hume that our faith in efficient causality is without foundation in fact or experience. He suggests that our sense of final causality is about the only foundation it has:

> The question "why?" is always the question after a final cause, after a "wherefor?" We have nothing resembling a "sense for the perception of efficient causes." Thus Hume is right that only habit (but not just that of the individual!) makes us expect that one often-observed process follows another. What gives us the extraordinary firmness of our faith in causal-ity, however, is not the great habit . . . but our *inability to interpret* what happens except as something that happens on *purpose*. It is the faith that only what lives and thinks is *effective* -- the faith in will and purpose; it is the faith that all that happens is a doing, and that all doing presupposes a doer. (Nietzsche, *Will to Power* 550, in Kaufmann 1956, 229)

What we perceive are events unfolding in time. Our isolation of some moment in the initial unfolding to serve as the cause of what comes after is simply our interpretation: "The *calculability of an event* does not reside in the fact that a rule is adhered to; . . . it resides in the *'recurrence of identical cases'*" (Nietzsche, *Will to Power*, 551). What we call a "cause" is simply the means by which we trigger the recurrence of an event. And therefore, since the only experience we really have of causality is our sense of our own efficacy, Nietzsche proposes that we use the metaphor of will in all discussions involving causality:

> The question is in the end whether we really recognize the will as *efficient*, whether we believe in the causality of the will: if we do -- and at bottom our faith in this is nothing less than our faith in causality itself -- then we have to make the experiment of positing the causality of the will hypothetically as the only one. "Will," of course, can affect only "will" -- and not "matter" (not "nerves," for example). In short, one has to risk the hypothesis whether will does not affect will wherever "effects" are recognized -- and whether all mechanical occurrences are not, insofar as a force is active in them, will force, effects of will.
>
> Suppose, finally, we succeeded in explaining our entire instinctive life as the development of *one* basic form of the will -- namely, of the will to power, as *my* proposition has it; suppose all organic functions could be traced back to this will to power and one could also find in it the solution of the problem of procreation and nourishment -- it is *one* problem -- then one would have gained the right to determine *all* efficient force univocally as -- *will to power*. The world viewed from inside, the world defined and determined according to its "intelligible character" -- would be "will to power" and nothing else. (Nietzsche, *Beyond Good and Evil*, 36)

I have quoted at some length here from what may seem one of Nietzsche's more dubious thought experiments because it effectively culminates and concludes the arguments for final causality which we've

been tracking since Aristotle. As in Kant's critical philosophy, the claim is not metaphysical but methodological: it claims not that will actually underlies everything in the world, but that will is necessary for us to understand the world. It is not a truth about the world but about the perspective which we inevitably bring to it, the perspec-tive we must assume towards ourselves if we are to function in that world.

The effort to reconceive all things, in some way, as will has roots reaching back beyond Schopenhauer and Schelling's Universal Will at least to Leibniz' redefinition of extended substance as force. But Nietzsche's will to power is not the methodological equivalent of Leibniz' or Spinoza's *conatus*, which is that inherent tendency of beings to preserve themselves and actualize their essential form. Nietzsche's quanta are not self-contained, windowless monads; they exist only in relation to other quanta; and they struggle not simply to preserve themselves from passions suffered through the activities of others, but to extend their own power over themselves and others:

> My idea is that every specific body strives to become master over all space and to extend its force (--its will to power:) and to thrust back all that resists its extension. But it continually encounters similar efforts on the part of other bodies and ends by coming to an arrangement ("union") with those of them that are sufficiently related to it: thus they can conspire together for power. And the process goes on -- (Nietzsche, *Will to Power*, 636)

The language here is annoyingly anthropomorphic, even allowing for Nietzsche's methodological starting point. But, to be fair, there was no scientific language available in 19th century physics for what he

was trying to express. Whitehead struggled to devise a language for a process philosophy, a philosophy of flux and becoming, several decades later only to arrive at what is possibly the most obscure philosophy inthe English language. Nietzsche was, in effect, following Kant's dictum that reciprocal causality cannot be understood mechanistically but only teleologically. And I believe he came closer than anyone before him to glimpsing those truths that the cyberneticians and information theorists finally grasped a half century later. Consider this passage from the *Will to Power*:

> Regarded mechanistically, the energy of the totality of becoming remains constant; regarded economically, it rises to a high point and sinks down again in an eternal circle. This "will to power" expresses itself in the interpretation, in the manner in which force is used up; transformation of energy into life, and "life at its highest potency," thus appears as the goal. (*Ibid.*, 639)

Nietzsche is referring here to the Laws of Thermodynamics, the first of which states that energy remains constant, that it is neither created nor destroyed. If that's true, then Nietzsche says we should be able to conceive a total amount of energy in the universe that remains constant. That is important for his theory of the eternal return -- an ethically relevant variant on the recurring big bang theory that doesn't concern us here.

The second Law is relevant, and we've examined it before: it's the entropy law, which stipulates the inevitable degradation of that energy's quality, i.e., the inevitable loss of energy available for work (energy "regarded economically") in the universe. And Nietzsche

is making several interesting points about it. First, he's pointing out the obvious, that on the path to final entropy we find "negentropy" -- energy which is localized, organized and available for use -- and often organizing other negentropies like itself. Life is the examplar here.

Second, he's claiming that negentropic energy is used up through transformations in the general direction of "higher potencies," meaning the ability to "achieve[] more and more with less and less force" (*Ibid.*, 639). Nietzsche associates this evolution towards higher potency with increasing complexity (*Ibid.*, 644, 660). Bateson also notes the "directionality" of evolution towards greater complexity, and associates it both with increasing economies of effort and with hierarchies in systems regulation (Bateson 1991, 99-104). Nietzsche understood and made use of the language of systems and organization. Because his quanta can only exist in relation to other quanta, what assumes the appearance of existence in Nietzsche's universal becoming is always a system of some kind. He argues that "all unity is unity only as organization and cooperation . . . as a pattern of domination that signifies a unity but is not a unity" (Nietzsche, *Will to Power*, 561). A "pattern of domination" implies an hierarchical relationship in which the parameters are determined from above. And so for both Nietzsche and Bateson, there is an evolution of complexity which is inherently hierarchical.

Third, and most significantly, Nietzsche says that the will to power expresses itself in the "interpretation, in the manner in which force is used up." This is obscure as it stands, but only because "interpretation" is being used here in an unfamiliar context. The basic idea is similar to Bateson's notion of mapping, which is the transform of differences; but Nietzsche's interpreting is more interactive because of its connection with will and because all existents are, at bottom, will to power:

> The will to power *interprets* (-- it is a question of interpretation when an organ is constructed): it defines limits, determines degrees, variations of power. Mere variations of power could not feel themselves to be such. . . In fact, interpretation is itself a means of becoming master of something. (The organic process constantly presupposes interpretations.) (*Ibid.*, 634)

The references to organic process and the construction of organs are clues to Nietzsche's meaning here. He says: "The body and physiology [are] the starting point" (*Ibid.*, 492) Why? Because an organism is an hierarchy of meanings: cells are defined functionally in terms of the tissues they make up, tissues are defined in terms of organs, organs in terms of systems, and so on. And this isn't just an external definition imposed by biologists. As Nietzsche saw it, the parts of a biological sub-system are defined organically through their appropriation by and consequent adaptation to that system. He was an early critic of Darwinism, marshalling arguments still heard today against strict selectionism (the idea that "every part of every creature is fashioned for and only for its immediate use" -- which Darwin, in fact, did not advocate); and against "gradualism" (the idea

that "nature does not make leaps" -- a phrase attributed to Linnaeus which Darwin did, in fact, embrace) (Gould 1982, 56; 179). Nietzsche's picture of the evolutionary process was much less orderly. He portrayed the internal environment of an organism as a struggle of wills among the various parts and systems to impose their form and needs upon the rest:

> The utility of an organ does not explain its origin; on the contrary! For most of the time during which a property is forming it does not preserve the individual and is of no use to him, least of all in the struggle with external circumstances and enemies.
>
> The influence of "external circumstances" is overestimated by Darwin to a ridiculous extent: the essential thing in the life process is precisely the tremendous shaping, form-creating force working from within which *utilizes* and *exploits* "external circumstances" -- The new forms molded from within are not formed with an end in view; but in the struggle of the parts a new form is not left long without being related to a partial usefulness and then, according to its use, develops itself more and more completely. (Nietzsche, *Will to Power*, 647)

Nietzsche took this perspective from physiology and applied it to all nature. Because all organization is hierarchical, all subsystems are definable in terms of the wholes of which they are parts, in the inorganic as well as the organic realms -- much as acids and bases, for instance, are defined in terms of their ability to form salts. The quanta which exist only in relation to each other are, in effect, each trying to define that relationship between them, to define their organization according to their own perspective -- that is, with their own needs driving the hierarchy. Again, our language here tends inexorably to the anthropomorphic, but Nietzsche understood the limits of the metaphor:

> . . . [B]ecoming stronger involves an ordering process which looks like a sketchy purposiveness; . . . apparent ends are not intentional but, as soon as dominion is established over a lesser power and the latter operates as a function of the greater power, an order of rank, of organization is bound to produce the appearance of an order of ends (*Ibid.*, 552).

This is a pretty fair anticipation of the cybernetician's explanation of teleology. And the idea that organization entails interpretation, a mutual defining of relationships among the parts, anticipates the connection between organization and information that is central to information theory. The quanta can be considered the impermanent, nearly indeterminate elements of negentropy. They are to the information theorists' bits of information -- those differences that make a difference -- as will is to reason: they are units of information conceived as actively self-organizing. Nietzsche, in short, was trying to conceptualize the transition point between entropy and information long before Shannon's equations even suggested their connection.

Lacking the formalisms of Shannon's equations (and Mendel's genetic theory), Nietzsche employed the anthropomorphism of "will " while frequently reminding his readers of its limitations. In fact, Nietzsche went Bateson one better by insisting not only there was no will in actuality, but that there was no unknown thing-in-itself behind the metaphor either:

> Properly speaking, there are no longer any things or any persons. There are no facts, there are only interpretations and

> interpretations of interpretations. (Lingis, "The Will to Power," in Allison 1977, 42)

This recalls Bateson's formulation that "the mental world is only maps of maps of maps, ad infinitum;" but having absorbed the idealists' critique of Kant, Nietzsche knows that talking about the physical world behind the appearances -- the territory behind the maps -- or even the "unknowable" *ding-an-sich*, as Bateson does, soon lands one in hopeless self-contradiction. All territories are maps. All facts are interpretation from some perspective.

The limitations of a well developed metaphor in comparison to a fully quantified theory needn't diminish the strengths it shares with theory, such as the capacity to reveal new insights beyond the experiences on which it is based. Nietzsche may have chosen the metaphor of will for methodological reasons -- or rather, had this choice forced upon him by virtue of his focus on individual ethics and psychology; but once he had detached will from any being to exercise it and placed it firmly in the context of becoming -- the world of coming-to-be and passing-away -- it was obvious that its agency could not be directed towards self-preservation. A self must be established before it can be preserved, and that means it must be imposed upon the flux and against whatever would resist it (Nietzsche, *Will to Power*, 634). The will to power is always directed towards growth, towards the expenditure of excess energy, and towards more power.

This was the basis of Nietzsche's critique of Darwin and Darwinism (not always the same thing -- in fact, much of Nietzsche's writing on evolution seems to be directed rather at Darwin's contemporary, Herbert Spencer). From it he derives two lines of argument. The first is that organisms do not possess a "survival instinct" but rather a basic drive towards power; they are organized, in other words, not for adapting to environments but for mastering them:

> Physiologists should think again before positing the "instinct of preservation" as the cardinal drive in an organic creature. A living thing wants above all to *discharge* its force: "preservation" is only a consequence of this. (Ibid., 650)
>
> Life is not the adaptation of inner circumstances to outer ones, but will to power, which, working from within, incorporates and subdues more and more of that which is "outside." (*Ibid.*, 681)

In the language of cybernetics, Nietzsche is arguing that we not look at life solely in terms of homeostatic organisms and populations seeking an adaptive equilibrium with their environment -- that we not overestimate the role of negative feedback. Though natural selection provides the ultimate regulation, life as lived and evolved involves processes of competition and domination/ submission in which positive feedback rules. While Bateson himself discovered the critical role of positive feedback in his analysis of these schismogenesic interactions, he was too much the conservative to ever feel comfortable with it. He argued that "the whole progress, so-called, of evolution is stimulated by the need to stay put":

> The grass changes and the horse changes, and the grass changes and the horse changes, and they change in such a way that the

> relationship between them may stay constant. And evolution essentially is a vast operation of interlocking changes, every particular change being an effort to make change unnecessary, to keep something constant" (Bateson 1991, 276).

He typically treated schismogeneses as pathologies in his anthropological and pyschological studies. Not so with Nietzsche, who saw this restless striving to overcome not only in every creature's relationship to its environment, but in man's relationship to others and to himself -- and embraced it.

Nietzsche's second line of argument against Darwinism was directed at those who tried to draw social and ethical conclusions from Darwin's theory, hoisting what came to be known as Social Darwinism atop scientific Darwinism. The Social Darwinists were a diverse group of thinkers and propagandists whose views ranged from the benign to the malignant. Though Darwin himself argued in his *Origin of Species* that natural selection does not imply progress, the Social Darwinists all portrayed evolution as a progressive improvement of the species, differing only in how they defined "improvement."

There were those like Spencer, who believed that "evolution will modify human nature until the individual will find his highest blessedness in sacrifice, although not so as to hinder the development of others" (Hoffding 1955, 485). And then there was William Graham Sumner, who claimed that "the millionaires are a product of natural selection, acting on the whole body of men to pick out those who can

meet the requirement of certain work to be done" (Garraty and Gay 1972, 959). Marx appealed to Darwinism for support and so did the Fascists.

The idea that character and genius are heritable, developed by Schopenhauer and others out of the scientific and popular prejudices of the day, now took on a socio-historical dimension. In an era marked by the ascendancy of capitalism and nationalism, competition and conflict were cast in ennobling roles: these were the forges of character and achievement. The ethical implications (post-Spencer) moved all too often in the direction of might makes right.

It was the Nazis who misquoted Nietzsche most shamelessly, trying to enlist his posthumous support for the racial superiority of Aryan Germans over Jews, a position he vehemently rejected. His doctrine of the will to power and the *ubermensch* -- the superman -- did seem to echo the Social Darwinists' refrain of unremitting struggle on the way to the next evolutionary step, but in fact Nietzsche's thought moves in a very different direction. Nietzsche saw profound social and ethical implications in the theory of evolution and even in his earliest writings, prior to his discovery of the will to power, he realizes that it poses the question of man's worth:

> Darwinism, however, instead of infusing him with optimism, convinces him that empirical facts do not bear out the prevalent view that all men, as such, occupy a unique position in the cosmos. Most men are essentially animals, not basically different from chimpanzees -- distinguished only by a *potentiality* which few of them realize: they can, but rarely do, rise above the beasts. Man can transcend his animal nature and become a "*no-longer-animal*"

> and a "truly *human* being"; but only some of "the *philoso-phers, artists, and saints*" rise to that point. (Kaufmann 1956, 129)

In the will to power, Nietzsche found the mechanism by which those rare individuals may transcend man's animal nature, justifying his existence through their achievements. Their occasional appearances in the course of history have little to do with natural selection, however.

While Nietzsche believed that the evolution of will to power from the simplest quanta onward tended toward greater complexity and differentiation, he rejected any implication that evolution was a progress towards perfection or that the human species itself was ever likely to improve over time. He believed that species were essentially conservative with respect to any individuals whose exceptional qualities might work to change them. That is <u>their</u> will to power at work:

> What surprises me most when I survey the broad destinies of man is that I always see before me the opposite of that which Darwin and his school see or *want* to see today: selection in favor of the stronger, better-constituted, and the progress of the species. Precisely the opposite is palpable: the elimination of the lucky strokes, the uselessness of the more highly developed types, the inevitable dominion of the average, even the *sub-average* types. If we are not shown why man should be an exception among the creatures, I incline to the prejudice that the school of Darwin has been deluded everywhere.
>
> That will to power in which I recognize the ultimate ground and character of all change provides us with the reason why selection is not in favor of the exceptions and lucky strokes: the strongest and most fortunate are weak when opposed by organized herd instincts, by the timidity of the weak, by the vast majority. (Nietzsche, *Will to Power*, 685)

Thus not just Nietzsche's superman, but all higher types -- "the strongest and most fortunate" -- are more like freaks of nature than the inevitable next step in evolution. And yet these types, these lucky accidents, Nietzsche insists, are the ones who give value and point to the entire process. Since evolution isn't progressing, "The *goal of humanity* cannot lie in the end but only *in its highest specimens*" (Nietzsche, *On the Use and Abuse of History* 9, in Kaufmann 1956, 127). Thus, in stark contrast to the Social Darwinists, Nietzsche finds the normative element to be tangential and even opposed to the process of adaptation and evolution.

Who then are these "highest specimens" and how do they come to be? Nietzsche offers a "genealogical explanation," a developmental theory of a sort falling somewhere between Hegel's universal history of the spirit and Freud's psycho-history of childhood. It is at once historical and philological, sociological and psychological. Nietzsche's "highest specimens" are those in whom the will to power has achieved its highest potency, but the meaning of this term shifts through history. Clearly, they are not the blond beasts of Aryan descent glorified by the Nazis. Though Nietzsche does use the term "blond beasts" in connection with the Aryans, the primary reference is to lions -- the king of beasts -- and it is used to describe various

ancient, conquering peoples including the Arabs and Japanese (Nietzsche, *Genealogy of Morals*, I 11). Their warrior-rulers were the highest specimens of an age long past.

The Homeric heroes are Nietzsche's real prototype as he describes how these noble peoples routinely credited their dominance to their innate superiority, fashioning their notions of what is valuable and good around their own traits --thus *arete* (and *virtus*), as we noted earlier, originally denoted valor. From this self-congratulatory notion of "good" devolves a contrasting notion of "bad" to describe the despised and conquered others who obviously lacked such noble traits; thus "in the word *kakos*" (Greek for bad, ugly, ill-born, craven, etc.) "cowardice is emphasized" (*Ibid.*, I 5). The "bad," in other words, is defined simply as a lack in relation to the good. Nietzsche gives philological evidence from a number of conquering cultures to establish this general pattern of aristocratic values. And he commends them for thus imposing their will, their interpretation on the lands and peoples they ruled. These conquering types exuded a raw and healthy will to power. They were men of action and deeds, acting out of unconscious instincts, delighting in war and conquest.

They were not so well appreciated by those peoples who were less powerful, whom they enslaved and labelled "barbarians." There arose among these an impotent hatred of those who were now their masters, who acted as they pleased while they were forced to obey. Eventually, the

will to power found a way even for such oppressed and weaker types as these to assert themselves. Where force of arms could not prevail, there was at last a slave revolt in morality:

> The slave revolt in morality begins when *ressentiment* itself becomes creative and gives birth to values: the *ressentiment* of natures that are denied the true reaction, that of deeds, and compensate themselves with an imaginary revenge. While every noble morality develops from a triumphant affirmation of itself, slave morality from the outset says No to what is "outside," what is "different," what is "not itself"; and *this* No is its creative deed. (*Ibid.*, I 10)

Ressentiment is one of those conceptually charged terms like *angst* that some time after its initial translation receives such precise and seminal definition through philosophical analysis that it is re-borrowed with original spelling and pronunciation intact as a new word, separate from its former translation. Nietzsche's "conception of *ressentiment* constitutes one of his major contributions to psychology" (Kaufmann 1956, 445), having influenced Scheler and Weber, among others. It is a repressed anger, an ill will which shapes the psychological landscape in reaction to what seems a "hostile external world" (Nietzsche, *Genealogy of Morals* I 10). The slaves' *ressentiment* against the "triumphant monsters" who conquered and debased them led to the fashioning of a new ethical valuation -- the concept of "evil":

> [The] "bad" of noble origin and that "evil" out of the cauldron of unsatisfied hatred -- the former an after-production, a side issue, a contrasting shade, the latter on the contrary the original thing, the beginning, the distinctive *deed* in the conception of a slave morality -- how different these words "bad" and "evil" are, although they are both apparently the opposite of the same concept "good." But it is *not* the same concept "good": one should ask rather precisely *who* is "evil" in the sense of the morality of

> *ressentiment*. The answer, in all strictness, is: *precisely* the "good man" of the other morality, precisely the noble, powerful man, the ruler, but dyed in another color, interpreted in another fashion . . . (*Ibid.*, I 11)

The "evil ones," that is, are the slaves' masters: the arrogant, grabbing, murderous, uncaring ones who take without giving, who deny equal justice to the weaker, and for whom life is of little value. These weaker types then arrive at a conception of the good based on themselves -- but of themselves defined in relation to their former masters: "the wretched alone are the good; the poor, impotent, lowly alone are the good . . . alone are blessed by God" (*Ibid.*, I 7). In these delineations of "evil" and the "good" that opposes it, Nietzsche is clearly referring to the Judeo-Christian revolt against the Roman empire (he counted Julius Caesar among the highest types), and this has often been taken as evidence of his anti-Semitism. To the contrary, rather than revile or reject the development of slave moralities he credited them with having "spiritualized" man. "Spirit" (*Geist*) here refers to mind or reason not just as intellect but as the form-giving, creative force of German idealism. He notes that with this revolt came the positive value placed on intellect:

> While the noble man lives in trust and openness with himself . . . the man of *ressentiment* is neither upright nor naive nor honest and straightforward with himself. . . . [H]e understands how to keep silent, how not to forget, how to wait, how to be provisionally self-deprecating and humble. A race of such men of *ressentiment* is bound to become eventually *cleverer* than any noble race; it will also honor cleverness to a far greater degree: namely, as a condition of existence of the first importance. (*Ibid.*, I 10)

And while the Jews of sterotype may again seem the intended reference here, Nietzsche knew this description could apply as easily to the constitutional movement in ancient Greece. Although the majority of Greeks behind that movement were not slaves but free men, driven more likely by resentment than *ressentiment*, they did manage to restrain and in some cities topple the ruling aristocrats while steadily inverting the meaning of *arete* to reflect their own interests. And they did "honor cleverness" to such an extent that they gave birth to classical Greek philosophy. This led to what Nietzsche called the "problem of Socrates": while Socrates was in many ways Nietzsche's model and ideal, he was acutely aware that "Greek philosophy = the decadence of the Greek instinct" (Nietzsche, *The Twilight of the Idols*, trans. Kaufmann 1954, X 2).

Nietzsche retained enough of the idealists' dialectic to know the value of the negative. What he came to call *amor fati* -- the love of fate -- expresses his ideal that the affirmation of life requires an affirmation of all its moments, the bad as well as the good: ". . . for happiness and unhappiness are sisters and even twins that either grow up or . . . remain small together" (Nietzsche, *The Gay Science*, trans. Kaufmann 1974, 338). On the related principle that "what doesn't destroy us makes us stronger," he even manages to affirm those most insidiously "diseased" of the slave moralists, the priestly classes:

> . . . [I]t is only fair to add that it was on the soil of this *essentially dangerous* form of human existence, the priestly form, that man first became an *interesting animal*, that only here did the

> human soul in a higher sense acquire *depth* and become *evil* -- and these are the two basic respects in which man has hitherto been superior to other beasts! (Nietzsche, *Genealogy of Morals*, I 6)

The spiritualization brought about by morality was the positive consequence of an overall cultural decadence in which the majority exerted combined power over the individually stronger types -- a moral tyranny replacing the tyranny of strength. On the face of it, the demands of morality were unrealistic:

> To demand of strength that it should *not* express itself as strength, that it should *not* be a desire to overcome, a desire to throw down, a desire to become master, a thirst for enemies and resistances and triumphs, is just as absurd as to demand of weakness that it should express itself as strength. (*Ibid.*, I 13)

While the demands were impossible, they did have an effect:

> All instincts that do not discharge themselves outwardly *turn inward* -- this is what I call the *internalization* of man: thus it was that man first developed his "soul." The entire inner world, originally as thin as if it were stretched detween two membrances, expanded and extended itself, acquired depth, breadth, and height, in the same measure as outward discharge was inhibited. . . . [A]ll those instincts of wild, free, prowling man turned backward *against man himself*. Hostility, cruelty, joy in persecuting, in attacking, in change, in destruction -- all this turned against the possessors of such instincts: *that* is the origin of the *bad conscience*. (*Ibid.*, II 16)

Nietzsche distinguishes the "good conscience" -- the sense of responsibility for keeping one's promises -- from the "bad conscience," which is the one we recognize through feelings of guilt. Guilt is lately become an unfashionable accessory in the psychological closet, something to be cast off and left behind. But once again affirming the

negative, Nietzsche finds in the bad conscience the distinguishing mark of the truly human:

> . . . [T]he existence on earth of an animal soul turned against itself, taking sides against itself, was something so new, profound, unheard of, enigma-tic, contradictory, and *pregnant with a future* that the aspect of the earth was essentially altered. . . . [H]e gives rise to an interest, a tension, a hope, almost a certainty, as if with him something were announcing and preparing itself, as if man were not a goal but only a way, an episode, a bridge, a great promise.-- (*Ibid.*, 11 16)

It is the bad conscience, in other words, that makes the "higher types" possible -- certainly not inevitable, since they are always "exceptions"; but possible. There are, in fact, two ways that morality can turn one against one's self and one's instinctual will to power:

> Moral intolerance is an expression of weakness in a man: he is afraid of his own "immorality," he must deny his strongest drives because he does not yet know how to employ them. . . .
>
> Instead of taking into service the great sources of strength, those impet-uous torrents of the soul that are so often dangerous and overwhelming, and economizing them, this most shortsighted and pernicious mode of thought, the moral mode of thought, wants to make them dry up.
>
> *Overcoming the affects?* -- No, if what is implied is their weakening and extirpation. But putting them into service: which may also mean subjecting them to a protracted tyranny . . . At last they are granted freedom again: they love us as good servants and go voluntarily wherever our best interests lie. (Nietzsche, *Will to Power* 383-5)

The political metaphor of a "tyranny" in the soul by which the affects are trained to obey, recollects the Greek analogy between the well-ordered soul and the well-ordered state. And the rightful ruler in both Nietzsche's and the Greek philosophers' soul is reason. In

The Antichrist, one of Nietzsche's last works, he goes so far as to reiterate the three classes of citizens in Plato's ideal *Republic*:

> In every healthy society there are three types which condition each other and gravitate differently physiologically; each has its own hygiene, its own field of work, its own sense of perfection and mastery. Nature . . . distinguishes the pre-eminently spiritual ones, those who are pre-eminently strong in muscle and temperament, and those, the third type, who excel neither in one respect nor in the other, the mediocre ones -- the last as the great majority, the first as the elite.
>
> The most spiritual men, as the *strongest*, find their happiness where others would find their destruction: in the labyrinth, in hardness against themselves and others, in experiments; their joy is self-conquest; asceticism becomes in them nature, need, and instinct . . . Knowledge -- a form of asceticism. (Nietzsche, *The Antichrist*, trans. Kaufmann 1954, 57)

This passage is notable in several respects. While it echoes Plato's formal divisions within the state and the soul, for instance, it differs in arranging the three types along a single continuum: the most spiritual types rule not because they have a different and better understanding of the Good, but because in pursuit of the power that everyone seeks they are, in fact, "the strongest." Theirs is the most potent form of the will to power, according to Nietzsche. Because they have mastered their desires and passions and conquered themselves, they are always in control: "Nietzsche agreed with the ancient tradition . . . that the man who conquers himself shows greater power than he who conquers others" (Kaufmann 1956, 219). Plato used this argument in the *Republic* (Book IX) to refute Thrasymachos' claim that "might is right;" here, Nietzsche uses it to reconcile the rule of reason with the philosophy of power.

The well ordered state is a useful analogy for understanding the power of reason and spirituality in Nietzsche's conception of the soul. Here too, there are echoes of Plato along with a reduction to a single underlying continuum. Nietzsche does not divide the soul into essentially different elements or faculties as Plato and so many other philosophers have done. Instead, he rejects the dualistic "ghost-in-the-machine" entirely by dividing the body itself into a plurality of "souls" -- "under-souls" -- which are simply the wills to power, the commanding (and commanded) interpretations, of all the various organs and systems: "our body is but a social structure composed of many souls," he says. (Nietzsche, *Beyond Good and Evil* 19).

That doesn't mean there are innumerable little reasoning faculties scattered throughout the body, however: while Nietzsche identifies soul with will, and acknowledges that will is a complex of sensation, thought, and the feeling of command (*Ibid.*, 20), he stops short of objectifying reason at any level. He speaks of the "misunderstanding of passion and reason, as if the latter were an independent entity and not rather a system of relations between various passions and desires" (Nietzsche, *Will to Power*, 387). Reason is not a faculty or an organ, but simply another form of the will to power -- in fact, "the 'highest' manifestation of the will to power" (Kaufmann 1956, 199).

The "higher potencies" of will to power are realized, as we've seen, through transformations -- reorganizations -- which "achieve more

and more with less and less force" (Nietzsche, *Will to Power* 639). What the will to power as the rational spirit represents is an organization of the passions, a command of them, which is, in effect, a "self-conquest." Nietzsche frequently refers to this process as a "sublimation," whereby some particularly strong passion (like sexuality) is essentially preserved in its will to power while its immediate object is cancelled, replaced by an object posed by the more potent will to power of the rationalized self, perhaps something more noble or even "sublime." And this is all made possible through the development of the bad conscience:

> To become powerful, to gain freedom, to master his impulses and perfect himself, man must first develop the feeling that his impulses are evil. This recognition is the essence of the bad conscience; man says to himself: my inclinations are damnable, and I am evil. At that point, man is divided against himself. There are two selves, as it were, one rational and the other irrational. The one self then tries to give form to the other; man tries to remake himself, to give "style" to himself, and to organize the chaos of his passions. (Kaufmann 1956, 220)

Those who can organize their passions instead of extirpating them, who can then use their power to more concerted effect -- who can rationalize and sublimate their impulses and instincts -- eventually overcome their bad conscience. They overcome themselves. These are the "higher men." Nietzsche provides us this portrait of them:

> To "give style" to one's character -- a great and rare art! It is practiced by those who survey all the strengths and weaknesses of their nature and then fit them into an artistic plan until every one of them appears as art and reason and even weaknesses delight the eye. Here a large mass of second nature has been added; there a piece of original nature has been removed -- both times through long practice and daily work at it. Here the ugly that could not

> be removed is concealed; there it has been reinterpreted and made sublime . . . It will be the strong and domineering natures that enjoy their finest gaiety in such constraint and perfection under a law of their own; the passion of their tremendous will relents in the face of all stylized nature, of all conquered and serving nature . . .
>
> Conversely, it is the weak characters without power over themselves that hate the constraint of style. (Nietzsche, *The Gay Science* 290)

The similarities and differences between Nietzsche's and Bateson's approach to character development begin to come into view here. Both start with the idea that life and character develop through interaction, but for Bateson character is a meta-learning about context, about the types of interaction one finds -- and expects to find -- oneself engaging in with others. Because our recognitions of context are habits developed from infancy, and because they lead us to choose actions that then shape events to fit that context, the meta-learnings constituting character are typically unconscious and difficult to alter.

Nietzsche provides no such formal definition of character. He seems to share Aristotle's view that our character consists of our habits in choice of actions and emotions, which is compatible with Bateson's view. For Nietzsche, however, character is more a matter of affective development than of cognitive develop-ment. The passions and "instincts" are fundamental in Nietzsche's thinking about the higher types -- the stronger they are, the better the chance of a truly exceptional individual; but emotions for Bateson are defined like any

other characterological element, in terms of the social relationships in which they are embedded. Nietzsche's (and Freud's) entire internal apparatus of drives and instincts -- analogues of energy, measurable in intensities -- is something he explicitly rejects.

We have emphasized that for Nietzsche, too, interaction is fundamental. His drives and instincts exist only as rational interpretations of their effects, their intensities being merely the measure of those effects. But there is no denying that Nietzsche's metaphors tend to get reified, and that Bateson more successfully manages to focus on relationships rather than things. Cybernetics is a language for talking about systems and their hierarchies -- for talking about relationships. And it is a mathematical language, so that its elements can be precisely defined and its operations specified. It is not surprising then that Bateson begins from the metaphor of mind rather than will, or that his notion of mind transcends the individual while Nietzsche's philosophy centers on it.

And while Nietzsche's philosophy emphasizes interaction to a far greater degree than any before him, it is worth noting that there is ultimately but one interaction we are all everywhere and always engaged in, one drive that defines all our actions and emotions -- namely, the will to power (what Bateson would call domination/submission). Bateson engages in no such reduction. His interactions around competition, pride and admiration, nurturance and dependence, and other schismogenic

relationships should, as they come to predominate one's outlook or reinforce each other in distinctive ways, define different character types. It's true that the will to power can take many forms, and Nietzsche does identify and analyze various character types; but he views them all as tending toward essentially the same end. And, perhaps for this reason, Nietzsche is clear in his conviction that one's passions can be sublimated and one's character transformed and improved:

> . . . [W]herever society is still dominated by the herd instinct it is still most expedient for every one to *pretend* that his character and occupation are unchangeable, even if at bottom they are not. "One can depend on him, he remains the same" . . . [S]ociety honors this *instrumental nature*, this way of remaining faithful to oneself, this unchangeability of views, aspirations, and even faults and lavishes its highest honors upon it. Such esteem . . . breeds "character" and brings all change, all re-learning, all self-transformation into *ill repute*. (Nietzsche, *The Gay Science*, 296)

Bateson does not speak of "self-transformation" or suggest that emotions may be developed or refined. Instead, he acknowledges that one can "reverse" or "replace" certain premises of behavior and, in rare instances, attain a meta-learning about one's contextual learning which can, perhaps, alter aspects of the character one has already acquired. But his picture of this last process suggests less the scuptor's chisel than a jackhammer: *[Note: in this description "Learning II" is the meta-learning which constitutes character, while "Learning III" is the meta-meta-learning which reconstitutes it]*

> What has been said . . . about the self-validating character of premises acquired by Learning II indicates that Learning III is likely to be difficult and rare even in human beings . . . But it is claimed that something of the sort does from time to time occur in psychotherapy, religious conver-sion, and in other sequences in which there is a profound reorganization of character. . . .
>
> "I" am my habits of acting in context and shaping and perceiving the contexts in which I act. Selfhood is a product or aggregate of Learning II. To the degree that a man achieves Learning III, and learns to perceive and act in terms of the contexts of contexts, his "self" will take on a sort of irrelevance.
>
> Even the attempt at level III can be dangerous, and some fall by the wayside. These are often labeled by psychiatry as psychotic, and many of them find themselves inhibited from using the first person pronoun. . . .
>
> For others, more creative, the resolution of contraries reveals a world in which personal identity merges into all the processes of relationship in some vast ecology or aesthetics of cosmic interaction. That any of these can survive seems almost miraculous . . . (Bateson 1972, 301-6)

For those who know something of his life, this description suggests interesting parallels to Nietzsche's near-mystical vision of the eternal return in the mountains near Sils-Maria, "6000 feet beyond man and time," and perhaps (though unfairly) even his lapse into madness over the last ten years of his life. The merging of personal identity "into all the processes of relationship in some vast ecology or aesthetics of cosmic interaction" recalls Nietzsche's denial of Being in a universe of Becoming.

But Nietzsche wasn't suggesting that the mark of the higher types was their ability to alter or throw off their personal identities at will. The types described here, the mystic as well as the psychotic, he viewed alike as products of weakness and exhaustion. The styling of

one's character that Nietzsche had in mind was rather like that of the sculptor who, looking deeply into a lump of marble, understands his efforts as "freeing the unique form buried within." Nietzsche's formula for self-overcoming is not to cast off the self but to pursue a truer, higher self. Borrowing from Pindar, he counsels us: "What does your conscience say? You shall become who you are!" (Nietzsche, *The Gay Science* 270).

This is where his differences with Bateson come to a head, for Bateson does not convey this same sense of a critical and creative relationship with one's self. Like Nietzsche, he considers the self (no less than the soul) a sort of mythic construction, "abstract[ed] from the experiences of interaction and difference" (Bateson 1991, 190). Unlike Nietzsche, he doesn't value or creatively engage that myth. To be fair, the ethics of individual existence is not his over-riding concern, except insofar as the Western insistence on self as opposed to the larger systems we are part of serves to falsify and destabilize our world. Bateson's ethics are ecological rather than individual. Perhaps this helps explain why he never addressed the subject of human achievement more directly.

As in his reference above to those more "creative" types who can "resolve the contraries," however, Bateson does speculate on the sources of creativity in a few passages; and his views on that bear

directly on Nietzsche's discussion of the potential for a bad conscience to produce "higher specimens."

Bateson's notion of "resolving the contraries" could easily have been lifted from Nietzsche, but wasn't. The embrace of contradiction has a long and honorable philosophical history, from Heraclitus' ancient dictum, "War is the father of all" (Kirk & Raven 1957, 195) to its 19th century apotheosis at the hands of German idealists, whose notion of dialectic depended on it. Bateson, however, arrived at this notion through his work with schizophrenics in the 1950's.

The contribution for which Bateson was most honored in his lifetime and will probably be remembered longest is his "double-bind" theory of schizophrenia, which can fairly be described as "damned if you do and damned if you don't." Bateson's research over several years at a VA hospital convinced him that a factor in the onset of schizophrenia was a family system in which a child is continually receiving conflicting signals at different contextual levels. He gives this example:

> A young man who had fairly well recovered from an acute schizophrenic episode was visited in the hospital by his mother. He was glad to see her and impulsively put his arm around her shoulders, whereupon she stiffened. He withdrew his arm and she asked, "Don't you love me any more?" He then blushed, and she said, "Dear, you must not be so easily embarassed and afraid of your feelings." (Bateson 1972, 217)

We can imagine the young man obediently trying to explain his confusion at her behavior and her scolding reply, "How can you say

that?" -- but the schizo-phrenic has learned to retreat in order to avoid such exchanges. Bateson reports that "the patient was able to stay with her only a few minutes more and following her departure he assaulted an aide and was put in the tubs." What happens is that a message communicated at one level is continually contradicted at another level.

Bateson found that confusions among levels of communication were also common to humor, art, poetry, and religion -- that they were connected in many instances and in many ways with creativity (Bateson 1991, 189). Those who are adept at playing these levels off against each other, he credited with "transcontextual skills." How are these gained? Bateson suggests that they can be learned by overcoming double binds that are critical in one's relationship to some significant other. He gives the example of the Zen koan, an insoluble paradox presented to a student by his master to help him achieve enlightenment, as a "conceptual double bind" (*Ibid.*, 212).

Nietzsche would submit that the bad conscience foisted on the strong by the morality of society represents a similar but far more profound double bind. The person of strong impulse and strong passions is told, in effect, that such passions and desires are wrong -- that he is wrong for having them. But they are him and to deny them is to wrong himself. Denying them causes unhappiness; not denying them causes unhappiness. Sublimating them becomes his way out, for then he

gets to use their power for ends of his own choosing --he is no longer the slave to his passions but their master. In choosing his own ends, he is expressing his highest will to power, his "instinct for freedom". He can now "transcontextually" mediate between his affective and rational selves. He has resolved his contraries and given form to himself -- indeed, he has chosen his higher self. And in this process lies the source of man's creativity:

> This secret self-ravishment, this artist's cruelty, this delight in imposing a form upon oneself as a hard, recalcitrant suffering material and in burning a critique, a contradiction, a contempt, a No into it, this uncanny dreadfully joyous labor of a soul voluntarily at odds with itself that makes itself suffer out of joy in making suffer -- eventually this entire *active* "bad conscience" -- you will have guessed it -- as the womb of all ideal and imaginative phenomena, also brought to light an abundance of strange new beauty and affirmation, and perhaps beauty itself. (Nietzsche, *Genealogy of Morals*, II 18)

It is interesting to note that Bateson and Nietzsche agree on the connection of creativity with a distinctly pathological double bind: we don't become creative by hearing jokes or reading poetry, however "transcontextual" they may be. The double bind must be lived, experienced, in a way that challenges and perhaps changes us. Self-destructive guilt seems an important component in both Nietzsche's divided soul and Bateson's schizogenic family. And Bateson even agrees that the pathological double binds conducive to creativity might be generated culturally:

> Certainly creative and artistic processes are in part determined by epoch and cultural milieu. It is therefore likely that pathologies of culture will produce pathologies of aesthetic perception and monsters of aesthetic creation. (Bateson 1991, 257)

Granted then that there are interesting parallels between Nietzsche's and Bateson's understandings on the nature and origin of creativity, the question remains as to why an orientation towards achievement develops in some and not others. Not all the strong are creative, and not all the creative are achievers; Bateson implies that "transcontextualists" are more likely to be labelled psychotic than creative. What sets the creators and achievers apart?

Nietzsche is very clear about the necessity of discipline. The weak and the psychotic clearly lack it. Morality, he argues, is a form of discipline that begins as a requirement that one harden oneself against the passions. And what is involved in this hardening discipline, exactly? In the language of will to power, Nietzsche describes it as an obeying:

> What is essential "in heaven and on earth" seems to be . . . that there should be *obedience* over a long period of time and in a *single* direction: given that, something always develops, and has developed, for whose sake it is worth while to live on earth; for example, virtue, art, music, dance, reason, spirituality. . . .
>
> Slavery is, as it seems, both in the cruder and in the more subtle sense, the indispensable means of spiritual discipline and cultivation [*Zucht und Zuchtung*], too. Consider any morality with this in mind . . . (Nietzsche, *Beyond Good and Evil*, 188)

Bateson proposes that the discipline necessary to pursue achievement may depend on self-imposed double binds (Bateson 1991, 209). He gives the example of the mountain climber: the climber's body "screams for relief" from the pain of his exertions, while his mind

screams back in protest to the pain of leaving such an all-consuming task uncompleted. The climber's discipline, he suggests, consists in "not listening to the body when it screams for relief," and in giving himself no reward "except such reinforcement as he can *reflexively generate* for himself" (*Ibid.*, 212). Athletes formulate such reinforcement for themselves in the mantra "no pain, no gain."

The reflexivity and refusal to hear pain that Bateson refers to here seems to bear a family resemblance to Nietzsche's divided soul "that makes itself suffer out of joy in making suffer." And yet, there are many, many people capable of such discipline who have no obvious background of pathology. Of course, the conditions for creative genius might well be more extreme than the conditions for creating mountain climbers and other athletes. Where personal pathology doesn't appear to play a role, cultural pathology might. While Bateson doesn't attempt to connect the capacity to impose double-binds on oneself with the preparatory experience provided by cultural pathologies or morality, Nietzsche clearly does make that connection.

For Nietzsche, morality and the bad conscience that comes of it are necessary conditions for the divided self that makes any exacting discipline possible. That possibility can not be realized, however, without strength of will to power. A major difference between Nietzsche and Bateson arises at this point because Nietzsche, like Schopenhauer, still attributes strength of character to heredity.

Bateson, following Freud, places a much greater emphasis on social interactions in early childhood. If some are more inclined than others to self-imposed double binds, Bateson would trace those differences to differences in the patterns of reward and punishment used by parents, on the idea that the patterns of parental discipline would likely be repeated in a child's later attempts at self-discipline.

Mitigating the difference here, a bit, is the fact that Nietzsche doesn't clearly distinguish between the physiological endowment provided by one's parents and the cultural endowment provided by one's social background:

> One cannot erase from the soul of a human being what his ancestors liked most to do and did most constantly: whether they were, for example, assiduous savers and appurtenances of a desk and cash box . . . or whether they lived accustomed to commanding from dawn to dusk . . . It is simply not possible that a human being should *not* have the qualities and preferences of his parents and ancestors in his body, whatever appearances may suggest to the contrary. This is the problem of race. (Nietzsche, *Beyond Good and Evil*, 264)

Kaufmann points out that this view is a corollary of Nietzsche's position on the mind-body problem:

> The two are so inextricably entangled with each other that "it is not at all possible" to explain heredity by ignoring the spiritual life of man... Nietzsche's definition of a people is consistent with this view; he emphasizes not the blood but the common experience. (Kaufmann 1956, 256)

Given these views, it isn't surprising that Nietzsche was a defender of Lamarck against Darwin. (It's more of a surprise, given Bateson's patrimony, to note that he also defended Lamarck, although

his defense in no way questions the basic tenets of natural selection and in no way supports the inheritance of habits of thrift or command.) While Nietzsche overemphasized the inheritance of acquired characteristics, his emphasis on the role of culture in preserving and transmitting a potential for self-discipline may nonetheless have not been all that different from Bateson's.

During the second world war, Bateson himself engaged in research on "national character," to identify techniques for motivating American and British troops and demoralizing the Germans and Japanese in psychologically specific ways. He defended this research against charges of invalid stereotyping by rooting his approach in childrearing practices and rejecting unitary character descriptions in favor of relational, bipolar and even tripolar descriptions -- dominant/submissive, exhibitionist/spectating, and nurturing/dependent, for instance, along with various combinations of these:

> [The American] pattern differs from the English not only in the reversal of the spectatorship-exhibitionism roles [fathers, not children, are the centers of attention], but in the content of what is exhibited. The American child is encouraged by his parents to *show off his independence*...
>
> Although the analogous German pattern probably resembles the American. . . certainly it differs from the Americans in that the father's dominance is much stronger and much more consistent, and especially in that the content of the boy's exhibitionism is quite different. He is, in fact, dominated into a sort of heel-clicking exhibitionism which takes the place of overt submissive behavior. (Bateson 1972, 102)

Whether Bateson is unconscionably promoting stereotypes here or carefully uncovering the grounds for those we have is less important than the fact that he has a clear empirical approach to identifying the mechanisms by which character traits are passed on from generation to generation. Nietzsche's approach is vaguer and less defensible against charges of stereotype and bias.

Although Nietzsche's emphasis on strength is a weak criterion for identifying specific conditions leading an individual to dedicate himself to achievement, his will to power provides a profound teleological insight into the motivating force behind such dedication. At this point in the discussion, it only states the obvious to say that Nietzsche perceived all pursuit of achievement as the pursuit of mastery and power. A few quotes will suffice to show how he approached this reduction:

> [I]n beauty opposites are tamed; the highest sign of power, namely power over opposites; moreover, without tension: that violence is no longer needed; that everything follows, obeys, so easily and pleasantly -- that is what delights the artist's will to power. (Nietzsche, *Will to Power* 803)

> Science -- the transformation of nature into concepts for the purpose of mastering nature. (*Ibid.*, 610)

> [Philosophy] always creates the world in its own image; it cannot do otherwise. Philosophy is this tyrannical drive itself, the most spiritual will to power, to the "creation of the world" . . . (Nietzsche, *Beyond Good and Evil* 9)

It is intriguing that years before Nietzsche developed his concept of the will to power, he approached the problem of achievement in terms

of envy and competition rather than domination. In the unpublished fragment *Homer's Contest*, he draws attention to the prominence of the contest (*agon*) in ancient Greece, from athletic competitions like the Olympics to the prizes awarded for the best poets, musicians, and tragedians. Even philosophy, Nietzsche argues, arose in a spirit of envy and competition:

> What, for example, is of special artistic significance in Plato's dialogues is for the most part the result of a contest with the art of the orators, the sophists, and the dramatists of his time, invented for the purpose of enabling him to say in the end: "Look, I too can do what my great rivals can do; indeed, I can do it better than they . . . and now I repudiate all this entirely and condemn all imitative art. Only the contest made me a poet, a sophist, an orator." (Nietzsche, *Homer's Contest* in Kaufmann 1954, 37-8)

It may seem that the discovery of the will to power only shifted Nietzsche's attention from the process to the goal; but the will to power in fact comprises both. It also helped forge a connection between his earlier insight here and the broader concerns of both German idealism and modern science. The Social Darwinists tried to extrapolate and extend the notion of competition in much the same way, but I think it's not hard to argue that the will to power was better suited to the task.

The adequacy of will to power as an explanation of an achievement orientation can perhaps best be appreciated by comparison with Plato's account which, I believe, was by far the most successful attempt previous to Nietzsche's. Recall that the customary Greek explanation

for the pursuit of excellence was that men pursue it for the sake of honor, for the recognition it brings of one's arete. Plato extended and deepened this explanation by grounding it in the idea that all mortal beings seek immortality: just as animals and ordinary men want to bear children in whom some part of them will live on, so do nobler souls want to generate great works by which their reputation will be secured with honor and their name live on -- not for a generation, but for eternity.

This was such a beautiful explanation that Nietzsche simply cribbed it. There may be a better word, but there's no better explanation. Much as Diotima urges Socrates away from the love of physical bodies towards the higher love of abstract Beauty, Nietzsche begins his remarks on immortality by reminding us that all the great philosophers were unmarried (excepting Socrates who, he suggests, "married *ironically*, just to demonstrate *this* proposition") (Nietzsche, *Genealogy of Morals* III 7). He then reiterates Plato's argument:

> As for the "chastity" of philosophers, finally, this type of spirit clearly has its fruitfulness somewhere else than in children; perhaps it also has the survival of its name elsewhere, its little immortality. . . . There is nothing in this of chastity from any kind of ascetic scruple or hatred of the senses, just as it is not chastity when an athlete or jockey abstains from women: it is rather the will of their dominating instinct, at least during their periods of great pregnancy. (*Ibid.*, III 8)

The imagery of pregnancy and children of the soul pervades Nietzsche's writings. He says that "making music is another way of making children" (Nietzsche, *Will to Power* 800). In "The Yes and Amen

Song" from *Zarathustra* he employs the refrain, "Never yet have I found the woman from whom I wanted children, unless it be this woman I love: for I love you, O eternity" (Nietzsche, *Thus Spoke Zarathustra* in Kaufmann 1954, 16). And like Socrates, who described himself as a "midwife" of the soul, Nietzsche saw his own role as helping give birth to the higher men -- who are themselves creators, first and foremost.

While there is a deep affinity here between Plato's and Nietzsche's understanding of the goals that drive the creative achievements of mankind, it must be said that Nietzsche's grounding of that understanding in the will to power makes for an ultimately more satisfactory explanation. Plato's suggestion that all mortal beings desire immortality extends a distinctly teleological form of explanation into regions where not just science but even common sense simply can't go along. In Nietzsche's account, the desire for immortality -- and even eternity -- is distinctly human; in fact, it marks those higher types who alone distinguish man from the rest of the animals. It is the supreme degree of the will to power (Kaufmann 1956, 216), but as will to power it is otherwise essentially the same force at work in all being.

For Nietzsche, the will to power was a teleological explanation only in the same way as the organs of the body can be described teleologically -- in terms of the function they perform within the larger systems they are parts of. Nietzsche lacked the cybernetic

concepts necessary to describe mutually interacting causal systems in any but teleological terms, but it is clear from his statements concerning will to power as interpretation that he was scientifically more committed to formal than final explanations. To the extent that the language of final causality, stretching back to Plato and Aristotle, is capable of mapping the territory mapped by modern science, I think Nietzsche managed it.

His explanation for human achievement thus ties in to an explanation of all Being -- or rather, becoming. Explanation gets no deeper than that. Yet it manages to avoid the fate of those metaphysical explanations (like God) that, because they explain everything, really don't explain any particular thing at all: Nietzsche traces the evolution of the will to power, at least sketchily, from fundamental quanta to biological organisms; and then, in considerable detail, from man's uncivilized past, through the civilizing/moralizing process, and on into the post-civilized nihilism of the present day. He shows how the will to power works in a wide variety of contexts, from religion and altruism, through politics and commerce, to art and philosophy. The breadth of his applications of will to power and the discriminations it makes possible go a long way in making this as a satisfying theory.

And like Plato's account -- but even more so -- it is elegant in its simplicity.

Its weaknesses are few and hard to make a case for: that it is not predictive --that it can't tell us which individuals will prove to be of the highest rank -- is true of just about any explanation in the social sciences. Nietzsche himself seemed to think he could manage predictions of a probabilistic sort insofar as his analyses of cultural potential can be taken as anything more than rationalizations of stereotype -- and I'm not sure they can, since both his pronouncements and the methods he used in arriving at them were dubious at best. I do believe Bateson's approach has more potential on this score.

Probably its chief fault -- and fatal flaw -- is that it represents the last great achievement of the metaphysical tradition, a tradition which (as Nietzsche did predict successfully) ended with him. While the existentialist movement proudly claims Nietzsche as one of its progenitors, its methods tend more to the phenomenological than the metaphysical -- meaning that its intent is to describe what is rather than discover its underlying nature. The will to power, which was the foundation of his "anti-metaphysic" and the basis for his psychology, has only been passed on in bits and pieces. Its use in the century since Nietzsche introduced it has been restricted pretty much to the fields of political science and psychology. Uprooted from its own ground, it seems to have lost vigor -- it no longer commands the attention it should.

Freudian Psychoanalysis

Freud's psychoanalytic theory provides a good example of the attenuation of Nietzsche's philosophical psychology -- and of the entire German philosophical tradition -- in the hands of the new, experimental psychology that emerged in Germany and elsewhere in the middle of the nineteenth century. Freud's debts to Nietzsche and the German idealists, while real, should not be overstated: Freud was trained in medicine, not philosophy; and what may seem to be borrowed concepts were mostly common terms in educated if not everyday German discourse at the time (Ginsberg "Nietzschean Psychiatry," 295-7). But the notion of a dynamic mind, actively engaged in shaping its experience, and of an impulsive, unconscious element in that mind was clearly shaped by German philosophy and has helped to distinguish Continental from Anglo-American approaches to psychology ever since.

Freud's associate, Alfred Adler, was more directly beholden to Nietzsche, as he made the will to power a significant part of his psychology. Its counterpart in Freud's system, the infamous erotic instinct, bears "more resemblance to the all-inclusive and all-preserving Eros of Plato's *Symposium*" according to its author (Freud "The Resistances to Psychoanalysis," in Rieff 1963, 258). All that being said, however, it is difficult not to hear echoes of Nietzsche in some of Freud's basic formulations:

> Human civilization rests upon two pillars, of which one is the control of natural forces and the other the restriction of our instincts. The ruler's throne rests upon fettered slaves. (*Ibid.*)
>
> A progressive renunciation of inherent instincts, the satisfaction of which is capable of giving direct pleasure to the ego, appears to be one of the foundations of human civilization. Some part of this repression is effected by means of the various religions, in that they require individuals to sacrifice the satisfaction of their instincts to the divinity. (Freud "Obsessive Acts and Religious Practices," in Rieff 1963, 25-6)
>
> . . . [Analysis] sought to show that these same sexual components, which could be diverted from their immediate aims and directed to other things, made the most important contributions to the cultural achievements of the individual and of society. (Freud "The Resistances to Psychoanalysis" 257)

There are many other examples, but these serve to draw attention to the striking similarities between Nietzsche's and Freud's views on the connections among instincts, religious and moral repression, sublimation, and achievement. The differences between the two become more visible when we examine Freud's views on character development. In the end, they can be traced to differences in their choice of causal models.

It is difficult to discuss Freud's views on anything without going into all the arcane terms and psychical relationships that undergird psychoanalytic theory. We'll have to make do with some very broad brushstrokes here. On the most general level, Freud proceeds by distinguishing between the contributions of the external and the internal environments in our mental life. Our sense organs are, obviously, a way of gathering perceptions of the external environment.

But our body is also a source of perceptions -- internal perceptions of sensations and feelings:

> Very little is known about these sensations and feelings; those belonging to the pleasure-unpleasure series may still be regarded as the best example of them. . . . [T]hey may come from different places simultaneously and may thus have different or even opposite qualities.
>
> Sensations of a pleasurable nature have not anything inherently impelling about them, whereas unpleasurable ones have it in the highest degree. The latter impel towards change, towards discharge . . . (Freud 1960, 12)

Sensations and feelings are not the only furniture in the internal environment, however. There is also an array of "impulses" stemming from the various organs of the body, which may themselves be connected with the sensations of pleasure and unpleasure as in the impulses that arise from the "erotogenic" areas of the body (genitals, mouth, anus, etc.). Most importantly, there is a higher organization of such impulses into two broad classes of instincts, "one of which, the sexual instincts or Eros, is by far the most conspicuous":

> It comprises not merely the uninhibited sexual instinct proper and the instinctual impulses of an aim-inhibited or sublimated nature derived from it, but also the self-preservative instinct . . . The second class of instincts was not so easy to point to . . . a death instinct, the task of which is to lead organic life back into the inanimate state. (*Ibid.*, 30)

Among the many discrepancies already apparent between Freud's and Nietzsche's accounts, the positing of a death instinct stands out in sharp relief. This notion is as alien to Nietzsche as to Darwin. The divergence is all the more striking in that Freud's descriptions of

Eros sound at times very much like an echo of Nietzsche's most fundamental conception of will to power:

> . . . Eros, by bringing about a more and more far-reaching combination of the particles into which living substance is dispersed, aims at complicating life and at the same time, at preserving it. (*Ibid.*)

On the other hand, so does his description of the death instinct:

> It appears that, as a result of the combination of unicellular organisms into multicellular forms of life, the death instinct of the single cell can successfully be neutralized and the destructive impulses be diverted on to the external world through the instrumentality of . . . the muscular apparatus; and the death instinct would thus seem to express itself -- though probably only in part -- as an instinct of destruction directed against the external world and other organisms. (*Ibid.*, 31)

Although Freud emphasizes how often "the two classes of instincts are fused, blended, and alloyed with each other," as in sadism, he argues nonetheless for a dualistic conception of "the goal and purpose of life" (*Ibid.*). Nietzsche would doubtless find this intellectually unnecessary, and to Freud's credit he admits that "the distinction betwwen the two classes of instincts does not seem sufficiently assured" (Ibid., 32). It is hardly surprising that where an empirical scientist sees diversity a philosopher will insist on underlying unity, but the differences between Nietzsche and Freud here go deeper than that. Freud himself suggests that both instincts, while at odds with each other, ultimately share a fundamentally conservative principle: while Eros works to preserve life, the death instinct is needed to "re-establish a state of things that was disturbed by the emergence of

life" (*Ibid.*, 30-1). Nietzsche, whose will to power was anything but conservative, would reject both descriptions as the utterances of a decadent and world-weary spirit. Freud's contention that pain has a greater impelling force than pleasure would be similarly rejected.

The gulf between Nietzsche's monism and Freud's dualism entails a certain irony. Freud's less metaphysical, more empirical approach manages somehow to seem less common-sensical: it is, in fact, easier to recast all human endeavour in terms of power than in terms of sex and death. And it is not just that the former is more acceptable. Sex is a more defined and definite term; power is less definite and therefore more protean. Some of Freud's equations seem unbearably contrived; Nietzsche's invariably less so.

The monistic will to power also has the advantage of making the next step in the formation of character more than a bit clearer. For Freud, character takes shape through the manner in which the sexual instincts in particular are handled by the individual psyche. It is necessary at this point to introduce the familiar distinctions of ego, id, and super-ego. Freud generally begins with the ego, since that is the seat of consciousness and we are therefore most aware of it. The ego is centered around our perceptual apparatus and helps us deal with the external world. It is the more rational aspect, the "coherent organization of mental processes . . . that controls the approaches to

motility -- that is, the discharge of excitations into the external world" (Freud 1960, 7).

The id, on the other hand, is the locus of our unconscious life and it is centered around the instincts: "perceptions may be said to have the same significance for the ego as instincts have for the id" (*Ibid.*, 30). The id, in other words, is the seat of the passions. It is the ego's job, as the reasoning faculty, to control them and in some cases (as in forbidden mother-love) to repress them utterly into unconsciousness:

> [T]he ego seeks to bring the influence of the external world to bear upon the id and its tendencies, and endeavours to substitute the reality principle for the pleasure principle which reigns unrestrictedly in the id . . . [I]n its relation to the id [the ego] is like a man on horseback, who has to hold in check the superior strength of the horse. (*Ibid.*, 15)

The analogy of horse and rider for reason's role in guiding the passions is as old as Plato. The notion of repression into the unconscious was unknown to the Greeks, but it was familiar to Nietzsche. Freud developed this Nietzschean parallel in his description of the super-ego. The super-ego, or ego ideal, arises through the child's resolution of the Oedipal complex. The resolution is typically managed through ego-identifications with the child's father and mother. The ego blocks the id's inadmissable mother love by "assuming the features of the object . . . trying to make good the id's loss by saying 'Look, you can love me too -- I am so like the object'" (*Ibid.*, 20). This is the origin of narcissistic self-love. A more

ambivalent identification with the father, expressing both the child's love and hate for him, results in the super-ego:

> Clearly the repression of the Oedipus complex was no easy task. The child's parents, and especially his father, were perceived as the obstacle to a realization of his Oedipus wishes; so his infantile ego fortified itself for the carrying out of the repression by erecting the same obstacle within itself. It borrowed strength to do this, so to speak, from the father, and this loan was an extraordinarily momentous act. The super-ego retains the character of the father . . . (*Ibid.*, 24)

The "character of the father" as both an object of affection his own right and as a perceived obstacle to the mother dynamically expresses itself through the super-ego in the form of a series of positive and negative injunctions:

> The super-ego is, however, not simply a residue of the earliest object-choices of the id; it also represents an energetic reaction-formation against those choices. Its relation to the ego is not exhausted by the precept: 'You *ought to be* like this (like your father).' It also comprises the prohibition: 'You *may not be* like this (like your father) -- that is, you may not do all that he does, some things are his prerogative.' (*Ibid.*)

The "oughts" and "ought nots" of the super-ego together form an ideal for the ego, an ideal the child will attempt to emulate in later life. In effect, it provides the child a conscience -- and a sense of guilt. And thus is man enabled to pursue his higher self:

> What has belonged to the lowest part of the mental life of each of us is changed, through the formation of the ideal, into what is highest in the human mind by our scale of values . . .
>
> It is easy to show that the ego ideal answers to everything that is expected of the higher nature in man. As a substitute for a longing for the father, it contains the germ from which all religions have sprung. The self-judgement which declares that the

> ego falls short of ideal produces the religious sense of humility to which the believer appeals in his longing. . . . Social feelings rest on identifications with other people, on the basis of having the same ego ideal. (*Ibid.*, 26)

Starting from what seems like a very different perspective, Freud thus arrives at the same critical destination (if not the same notion of "higher nature") as does Nietzsche. Where Nietzsche sees guilt as the spiritualizing effect on the individual of a vast slave revolt in morality, Freud seems to see in it only a childish, if unavoidable, solution to family stress. But in fact, Freud's view is not all that different from Nietzsche's -- he is only providing a more detailed theory on how the spiritualizing process unfolds. In a phrasing which sounds rather like Nietzsche's understanding of the racial factor in producing higher types, Freud points out that it is not just the father's influence that is at work here: "Owing to the way in which the ego ideal is formed, it has the most abundant links with the phylogenetic acquisition of each individual -- his archaic heritage" (*Ibid.*). In *Totem and Taboo*, he explicitly lays out the origins of the Oedipal complex, and its resolution in religion, morality, and the social sense against a backdrop of revolt and ressentiment not all that dissimilar to Nietzsche's genealogy of morals.

Freud's and Nietzsche's views of man's "higher nature" seem so different on the above account, however, that we must pursue a step further Freud's explanation of the character formation of those we have here called "achievers." This will require the introduction of one

more technical term from psychoanalysis, the notion of "libido." And here is where Freud's fundamental differences with both Nietzsche and Bateson come into full view.

Freud describes libido as a "displaceable and neutral energy . . . employed in the service of the pleasure principle to obviate blockages and to facilitate discharge" (*Ibid.*, 34-5). He suggests that it is a "desexualized Eros" which can now be added to either "to a qualitatively differentiated erotic or destructive impulse" to "augment its total cathexis" (charge of energy) (*Ibid.*). This libidinal energy is stored as in reservoirs, in "one or another region of the mental apparatus" (Nietzsche "Libidinal Types," in Rieff 1963, 211). According to where it is stored, Freud claims "we can distinguish three main libidinal types" and then three more mixed types, which occur when the reservoirs in two regions are quantitatively similar (*Ibid.*). The three regions in question are, of course, the id, the ego, and the super-ego; and the three main types corresponding to them are the erotic, the narcissistic, and the obsessional:

> The *erotic* is easily characterized. Erotics are persons whose main interest -- the relatively largest amount of their libido -- is focused on love. Loving, but above all being loved. . . . From the social and cultural standpoint this type represents the elementary instinctual claims of the id, to which the other psychical agencies have become docile.
>
> The second type is that which I have termed the *obsessional*; . . . its distinctive characteristic is the supremacy exercised by the super-ego, which is segregated from the ego with great accompanying tension. Persons of this type are governed by anxiety of conscience instead of by the dread of losing love; they develop, we might say, an inner instead of an outer dependence; they develop a

high degree of self reliance, from the social standpoint they are the true upholders of civilization, for the most part in a conservative spirit.

The characteristics of the third type, justly called the *narcissistic*, are in the main negatively described. There is no tension between ego and super-ego -- indeed, starting from this type one would hardly have arrived at the notion of a super-ego; there is no preponderance of erotic needs; the main interest is focused on self-preservation. . . . The ego has a considerable amount of aggression available. . . . Where loving is in question, they prefer loving to being loved. People of this type impress others as being "personalities"; it is on them that their fellow-men are specially likely to lean; they readily assume the role of leader, give a fresh stimulus to cultural development or break down existing conditions. (*Ibid.*, 211-2)

We can quickly spot Nietzsche's warrior-aristocrats in the narcissistic type, though once again, his emphasis would be on their will to power rather than self-preservation. The "higher specimens," those narcissistic types who have undergone the regimen of morality and guilt, whose ego has been tempered by super-ego without being overwhelmed by it, Freud calls the "*narcissistic-obsessional* type":

[T]his type "represents the variation most valuable from the cultural standpoint, for it combines independence of external factors and regard for the requirements of conscience with the capacity for energetic action, and it reinforces the ego against the super-ego. (Ibid., 212-3)

Thus again, Freud comes around to a position closely resembling Nietzsche's, though clothed in heavy jargon. The jargon can be justified, as before, in terms of the specificity it provides on the mechanisms whereby an achiever begins to assume a different life trajectory from the guilt-besotten alcoholic. But it must be admitted that psychoanalysis, like history, looks back instead of forward: it is

not a predictive science. Freud's psychdynamic mechanisms explain only in retrospect. That is nonetheless an advance on where Nietzsche left things, and Freud's overall emphasis on the psycho-sexual development of the child within the family system is certainly to be counted among the most influential theoretical insights of the last century.

Its limitations as a theory are considerable, however. Aside from the many positivist critiques of the inherent unobservability of the psychical entities and structures described by the theory, that seem to grow like topsy; and aside from the objections that any theory inevitably generates when it explains away all criticism as "resistance;" and aside from all the criticisms of Freud's neurotic over-emphasis on sexuality, there remains Bateson's basic question concerning the legitimacy of his underlying metaphor of psychic energy:

> The nineteenth-century scientists (notably Freud) who tried to establish a bridge between behavioral data and the fundamentals of physical and chemical science were, surely, correct in insisting upon the need for such a bridge but, I believe, wrong in choosing "energy" as the foundation for that bridge.
>
> If mass and length are inappropriate for the describing of behavior, then energy is unlikely to be more appropriate. After all, energy *is* Mass X Velocity^2, and no behavioral scientist really insists that "psychic energy" is of these dimensions. (Bateson 1972, xxii)

Libidinal energy is the case in point. We know enough now about the electro-chemical nature of synaptic firings so that the metaphor of displaceable energy in the brain does not seem entirely implausible. But what does it mean to say that libido is "desexualized Eros" -- a

"neutral energy?" Electrical energy always has a charge -- and always the same charge. How does energy obtain this charge or that -- for the death instincts also represent a form of energy -- or no charge, by virtue of need?

Perhaps we can reconstruct this phrase so that it doesn't imply any inherent qualitative difference in the energy itself. "Neutral energy" might simply mean energy which no longer has a sexual percept in the mind as its anode. Perhaps the "reservoirs" of libido that gather in the id or ego are cathodes in the cranial electrolyte. Perhaps there is a theory there, but it's not Freud's and it is doubtful that psychoanalysis could be translated into it ungarbled. In fact, the reduction of psychic energy to the formulas governing the behavior of any known physical energy is so fraught with difficulties as to be hopeless. Freud's metaphors of "energy reservoirs," sending libidinal impulses "flowing" and "backflowing" around "blockages" and such, actually sounds more like hydraulics than electronics. Whichever metaphor is most appropriate, it remains a thoroughly teleological system expressed in metaphors drawn from the physical universe where efficient causality rules:

> One of the main pathologies of psychological and psychiatric thinking is that these two ways of explanation are continually being crisscrossed, mixed up, and confused. We then get a whole economics of psychic energy in Freudian psychology and a whole mess of nonsense recurring over and over again in psychology, because people will think that the hard-science world should somehow be a part of the mental world, in which there are nothing but mental phenomena. (Bateson 1991, 163)

Nietzsche's will to power clearly has advantages over Freud's psychic energies in that it is simpler -- you needn't be either a philosopher or a psychoanalyst to understand it; its metaphorical status is acknowledged and its connection with the universe of efficient causality more carefully worked out; it better avoids mind-body dualism; it is even more basic psychologically, inasmuch as Eros and the death instincts are more easily reducible to will to power than they are to each other; and, finally, in its emphasis on interpretation it points to a way out of the teleological dead-end in which so many attempts at explaining psychic life have been trapped.

Bateson's critique of the Freudian approach is not limited to his doubts about psychic energy. Despite its emphasis on the child's relationship to its parents in psychic development, Bateson notes that its approach to treatment is steadfastly one on one:

> This is not the place, and the time is not ripe, for detailed predictions about what will happen to individual psychology and the techniques of treating the individual when systems theory becomes assimilated into this field. It is worth noting, however, that many parts of conventional individual psychology have long been ready for framing within systems theory, notably the Freudian concept of psychological conflict where the contrasting poles of thought or motivation are conventionally presumed to be interactive, each promoting the other. (Bateson 1991, 260)

Those parts that are ready for "framing within systems theory", are of course those same parts in which Freud and Nietzsche find most common ground. As for his unstated predictions about the impact of systems theory on psychotherapy, we can only speculate. Psychoanalysis

is still around; but family therapy and support group approaches certainly seem to have made a major impact on the field. Bateson did not seem to feel that there was much hope of saving the bulk of psychoanalytic theory:

> In other areas the assimilation [of individual psychology to systems theory] will not be so easy. Many of the common concepts of individual psychology, which are handled as nouns in the language of psychologists and even to some extent reified, will, no doubt, be translated into a language of process. Such concepts as ego, anxiety, hostility, psychic energy, need, etc., will have a new appearance and a very different status in the total system of explanation. These changes will be difficult to assimilate.
>
> Perhaps even more difficult will be the shift in the boundaries of the individual mind . . . (*Ibid.*)

This last shift, of course, has proven very difficult indeed -- for systems theory.

The Empirical Tradition

While the rationalist tradition was building great cathedrals of philosophy on the Continent and digging the catacombs for Freudian psychoanalysis, the empiricists in England were busily clearing the site for a competing philosophical tradition and pouring the foundations for what has become the dominant paradigm of experimental psychology in the 20th century.

The empirical approach began with the assertion of the primacy of the outer world over the inner; the rationalists generally took the opposing view. The rationalists held that the mind itself contains certain innate, indisputably true ideas and necessary principles; that the mind is, as a result, an active shaper of its experiences; and finally, that the mind is autonomous -- freely self-determining -- precisely to the degree that its actions proceed from such innate ideas and principles. The empiricists, on the other hand, rejected the existence of innate ideas entirely.

Like Hobbes, they believed that all knowledge is ultimately traceable to experience in the form of sense impressions. Unlike Hobbes, they were not necessarily wedded to materialism:

> Although Hobbes might be said to be the father of British associationism, Locke (1690) is usually credited with being its founder. Like Hobbes, Locke was an opponent of the traditional rationalism, but he was not a materialist. On the assumption that the innate mind is a tabula rasa (cleared slate) and that all knowledge is attributable to experience, Locke sought to understand the contents of the adult mind in terms of the gradual building up of ideas from experience. (Bolles 1967, 30)

Locke acknowledged two sources for our experiential ideas, sensation and reflection, the latter being a sort of internal perception that is conscious of "the functions performed in connection with th[e] content" provided by external perception (Windelband 1958, 451). These "functions" include the thought processes by which the simple ideas of sensation are built up into complex ideas through their association with other ideas in our memory. Out of these simple ideas

and thoughtful operations, Locke tries to reconstruct our entire inner life.

Locke's common sense approach to the philosophical problems of perception and truth, combined with his influential writings on political theory, gave a great popular impetus to the associationist school of philosophical psychology. His tendency to ignore deeper problems and inherent inconsistencies left the field wide open for others to make their mark.

The debates that Locke set off over "primary" and "secondary" qualities -- those that inhere in the object (like shape) vs. those that inhere in our perceptions of them (like color) -- led first to the idealism of Berkeley and then to the skepticism of Hume. Little if any progress was made toward understanding the higher activities of mind (like morality and the basis for achieving behavior) until John Stuart Mill brought the associationalist psychology together with utilitarianism.

Mill was in many ways a radical empiricist and a forerunner of 20th century logical positivism. He argued in his *System of Logic* that even mathematical truths and logical syllogisms were ultimately rooted in experience (Lerner 1961, xix). His analyses and defenses of the principles of induction were critical to the development of the modern scientific method:

> Contemporary science continues to rely on Mill's "methods," and our own easy commitment to the hypotheticodeductive method can be attributed to the immediate hold the *System of Logic* took on the scientific mind. Not many scientists in the late nineteenth century read Galileo; all of them read Mill (Robinson 1986, 327)

Mill clarified the associationist position by distinguishing between various "laws of mind," including: a law stipulating that every sense impression corresponds to an idea; a law of connection between two successive or simultaneous stimuli such that, given sufficient repetition, one cannot think of one without thinking of the other; and finally, a law that assures that a single intense stimulus will have the same sort of effect on the mind as a repeated, weaker stimulus (*Ibid.*, 328). Through laws such as these and the regularities to be discovered through experiment and observation, Mill believed that a science of psychology was possible, though it would never have the predictive value of the physical sciences since humans tend to operate in non-reproducible contexts:

> [T]he law of associations does not predict or even attempt to predict the *exact* result of an experiment. Rather, it refers to the *tendency* of something to occur, other things being equal. That other things are never equal in the affairs of man is only to say that our exact laws will not be testable, not that they are not laws. Mill gave (invented) the name *ethology* to cover this science which is deduced from the empirical laws of psychology. As conceived by hiim, ethology was to be the science of *character* or that discipline concerned with the effects of environmental conditions on the laws of thought, feeling, and conduct. (*Ibid.*, 329)

Mill himself never managed to develop his ethological science and what has come to be known as ethology today concerns animal rather than human behavior. Mill did, however, modify and develop the egoistic

ethic that, in some version or other, had accompanied associational psychology since Hobbes to where it made a passable contribution to our understanding of virtuous behavior.

Mill's utilitarian ethic is connected to Hobbes' egoism through its emphasis on pleasure. The utilitarians, however, situated the pleasure principle on an ethical foundation by advocating "the greatest good for the greatest number." There were many objections to this ethical system, ranging from the role of motives (Mill replied: "the motive has nothing to do with the morality of the action, though much with the worth of the agent") to the role of religion as a necessary basis for morality (he denied it was) (Mill, *Utilitarianism*, in Lerner 1961, 205). One of the most persistent and forceful objections concerned utilitarians' apparent disregard for "higher ends":

> Now, such a theory of life excites in many minds . . . inveterate dislike. To suppose that life has (as they express it) no higher end than pleasure --no better and nobler object of desire and pursuit -- they designate as utterly mean and grovelling; as a doctrine worthy only of swine . . . (*Ibid.*, 195)

Mill rebuffed this charge by reintroducing the Greek notion of "higher" and "lower" pleasures as well as the Greek standard by which they should be judged: by those who know both and who are judicious:

> Human beings have faculties more elevated than the animal appetites, and, when once being made conscious of them, do not regard anything as happiness which does not include their gratification. . . . (*Ibid.*, 195)
>
> It is indisputable that the being whose capacities of enjoyment are low, has the greatest chance of having them satisfied; and a highly

> endowed being will always feel that any happiness which he can look for, as the world is constituted, is imperfect. But he can learn to bear its imperfec-tions, if they are at all bearable; . . . It is better to be a human being dissatisfied than a pig satisfied; better to be Socrates dissatisfied than a fool satisfied. And if the fool, or the pig, are of a different opinion, it is because they know only their own side of the question. The other party to the comparison knows both sides. (*Ibid.*, 197)

Mill's utilitarian explanation for the attraction of intellectual and artistic pursuits and for the tolerance of the inevitable dissatisfactions generated by those pursuits, is an eloquent version of the explanation in terms of reasons that we examined back in the beginning of this work. It is useful to recall it here because its limitations are, at this point, so clearly visible. While it bears resemblances to the Greek explanation in that it distinguishes different grades of pleasure and is teleological, it suffers by comparison.

Plato and Aristotle set forth a tripartite view of the soul, for instance, each part with its own proper role and distinctive pleasures; Mill's psyche has only higher and lower pleasures with no inherent hierarchical principle. And the Greek view gains explanatory weight as it ties into political, epistemological and even cosmological theories. Mill's utilitarianism supports his liberal-to-socialist political philosophy, but the mesh between the principle of utility and his methodological empiricism is anything but tight. Utilitarianism was intended to be a scientific morality, inasmuch as the consequences of our actions are observable; but without his unrealized science of

ethology or a better developed psychology to back it up, the process of inculcating an ethical disposition in the young or getting them to choose the higher pleasures had to remain a matter of exhortation. The impetus of modern science toward prediction and control were not satisfiable by Mill's associational psychology.

Mill, who had written most of his major works by 1861, was indeed the last serious defender of an associational psychology of consciousness. Though he advocated an empirical psychology, he understood that to mean the discovery of regularities between conduct, thought, and feeling -- the latter two being determined by introspection of the contents of our conscious mind. By the 1870's, however, psychology was coming into its own as a science and the philosophical introspection of Locke and Hume was already giving way to a more experimental version. In Germany, Wilhelm Wundt had developed Fechner's psychophysics into an experimental introspectionism to serve as the basis for a physiological psychology. Wundt rejected the empirical psychology of Mill and others as simply a "physiological interpretation" of 18th century associative process, which it was (Robinson 1986, 344).

The distance between Mill and Wundt, however, was not nearly so great as that which was opening up between the introspectionists and the reductionists. Introspection, no matter what the approach, inevitably assumed the existence of a mind with distinctly conscious

mental furnishings available for examination there. The reductionists, no matter what their approach, rejected mind as an object of study. The rift between the two camps could not have been deeper, and divisions within each camp seemed shallow by comparison. Though Wundt rejected Mill's empirical psychology, he was still enough of a mentalist to argue that mind, whose workings are based always in physiology, could not in principle be reduced to physiology:

> If we could see every wheel in the physical mechanism whose working the mental processes are accompanying, we should still find no more than a chain of movements showing no trace whatsoever of their significance for mind . . . (A)ll that is valuable in our mental life still falls to the psychical side. (Wundt, *Lectures on Human and Animal Psychology* 446, in Robinson 1986, 371)

The reductionist position on psychology was initially posed in 1748 in a book entitled *L'Homme Machine* by de La Mettrie. He caused a minor furor by arguing that the faculties of mind could be reduced to the physiology of the brain. But La Mettrie was a minor figure, a scandal and little more. He was before his time. The tradition of French Enlightenment skepticism and naturalism took another hundred years to spawn a major philosophical and scientific figure capable of defending the reductionist position, and it arrived in the person of Auguste Comte. Comte coined the term "positivism" to indicate the modern ascendancy of science, with its positive contributions to knowledge, over and against superstition and metaphysics. "Negative" philosophy was another name for the critical, anti-metaphysical philosophy of Kant; the "positive" philosophy of Comte was to be the necessary next

stage in cultural evolution. The mentalistic psychologies of the metaphysical philosophers were henceforth to be abandoned:

> Agreeing with Kant that the mind itself is not directly observable and recognizing that much of what presented itself as "psychology" was no more than philosophers attempting to discover the laws of the mind introspectively, Comte dismissed psychology as "an idle fancy, and a dream, when it is not an absurdity." (Robinson 1986, 332-3)

That is not to say that Comte just threw up his hands at the possibility of understanding anything psychological. His strategy was rather to reduce or substitute for mental life matters more reliably available to scientific observation. He saw great potential in phrenology, and promoted the "direct observation of the *products* of mental life," which to him meant sociology, a science which he is generally credited with founding. He also advocated a comparative biological approach:

> Of course, had the philosophical psychologists not attempted the impossible and conceited task of looking into their own minds and had, instead, appreciated the importance of *feeling* and *emotion*, they would have looked throughout the animal kingdom and discovered bona fide psychological principles. Convinced, however, that only man was rational and intelligent, they ignored this most promising terrain. (*Ibid.*, 333)

It is interesting to note the variety of ways in which Comte was urging the reduction of mentalistic psychology to something more "scientific." In each case, the goal was the same: to replace the common terms of our mental life -- reason, memory, intention, and will, to name but a few -- with more readily observable phenomena. Phrenology was a forerunner of neurophysiology and the attempt to

reduce mind to brain; the emphasis on studying the "products of mental life" as opposed to its processes is not very different from the behaviorist program; and the idea of focusing research on emotional expression across various species suggests an early version of sociobiology.

In fact, the latter approach was soon picked up and advanced by Darwin himself. Darwin's most extensive psychological work, *The Expression of the Emotions in Man and Animals*, "may be said to have launched comparative psychology" (*Ibid.*, 335):

> . . . Darwin examines the facial musculature of many species, *Homo sapiens* included, and notes not only the anatomical similarities (already well established) but the similarities in facial expression produced by conditions giving rise to similar emotions. The angry dog and the actor feigning anger both retract their lips back over their teeth, bare their teeth, and clench them. Signs of submission, of sexual attraction, and of melancholy are of a similar nature throughout phylogeny wherever we find the anatomical equipment necessary for the expression of affect. . . . Not only is the present [human] species the survivor of a long process of natural selection, but in the behavior and emotions of this species, we will discover elaborated forms of those behaviors and feelings that characterize simpler types. (*Ibid.*, 356)

Comparative psychology had a tendency to anthropomorphize its findings on other species, attributing human subtleties of emotion to species not clearly capable of them -- a tendency, it was said, to confuse "analogies with identities" (*Ibid.*, 374). But the idea that behavior evolves and could be explained would prove powerful. Sociobiologists a century later would be going well beyond analogies. In extending psychological investigation to species for whom

introspection and interview approaches were impossible, comparative psychology also laid the foundations for a more behaviorally oriented, experimental approach to the science of psychology -- a learning theory made to order for the theory of natural selection.

Despite the influence of Comte, the turn away from mentalism towards some form of reductionism, whether to neural processes or observable behaviors, was far more pronounced in the English speaking scientific community than in its counterparts in France or Germany. Phrenology was the rage everywhere in the middle of the 19th century, but reductivism was only one of many psychological approaches developing on the Continent, where the rationalist and idealist traditions had always been stronger. The end of the century brought Freud's psychoanalytic school, most notably; but also the phenomenology of Franz Brentano and Edmund Husserl, a "descriptive psychology" with roots firmly set in both the idealists' notion of freedom and the experimental introspectionism of Wundt. Instead of rejecting the contents of the mind in favor of something more elementary, Husserl and the phenomenologists set about trying to describe and define in precise terms just what those contents were.

Martin Heidegger and Jean-Paul Sartre were later to combine phenomenology with Nietzsche's and Kierkegaard's ethic of individual authenticity into an existentialist philosophy which remained connected to the rationalist, metaphysical tradition even while rejecting

metaphysics and emphasizing the role of irrationality. The existentialist emphasis on freedom and on choosing one's self, however, made it an unlikely source for explanations of the role of character in determining lifelong orientations. The famous existentialist dictum "existence precedes essence" suggests that appeals to the power of character in determining our choices are a matter of bad faith -- an abdication of one's fundamental freedom. This places the existentialist position squarely outside the realm of social science, so we needn't consider it further here.

It is hard to understand, however, in light of this very different development from the techniques of experimental introspectionism on the Continent, how Anglo-American psychology fastened so resolutely onto an anti-mentalistic, reductionist course; but it did. Daniel Robinson, in his *Intellectual History of Psychology*, points out that in the first two decades of this century, "the most influential figures in American psychology were William James and E.B. Titchener," both of whom espoused an experimental analysis of consciousness. Their influence proved short-lived:

> Now, it is unmistakable to anyone surveying the contemporary psychological scene that there is hardly a vestige of the program envisaged by Titchener and James. The "rules of introspection" presented by the former are ap-plied in no laboratory, appear in no advanced treatment of the discipline, form no part of the modern psychologist's training. The same may be said of James' division of the discipline into Sensation, Cerebration, and the Tendency to Action. (Robinson 1986, 398)

What happened is a matter for speculation, and the answers are far from clear. Certainly, the ascendance of reductionist approaches was not the result of their unqualified success or popular acceptance. Even today, reductive explanations of the higher mental functions are typically unconvincing and psychology as an experimental science is not held in very high esteem. Nor were there compelling scientific reasons -- then or now -- for rejecting the mind as an object of study. There were certainly problems in getting subjects to "introspect" identically on separate occasions; but as Robinson points out, "the historical development was just that: historical and *not* scientific":

> No logical proof had been discovered by which it could be shown that a rationalistic psychology would fail. No experimental finding had made it clear that we lack a moral sense or a link with God or a love of beauty. No surgical procedure had established that the psychological dimensions of human life were readily reducible to neural mechanisms. . . . Rather, what had taken place was the adoption of a metaphysical position not on the nature of *truth* but on the nature of *psychology*. The decision was made that psychology was no more than a certain kind of method, an "experimental" method, and its subject matter would contain only those entries amenable to this method. (*Ibid.*, 402-3)

Whatever the reasons for adoption of the anti-mentalist orthodoxy, it is the reigning paradigm in psychology today and the last stop in our survey of thinking about character and the commitment to achievement.

The two principal threads of modern, scientific psychology both reflect the spirit of positivism initiated by Comte. The first, which begins with the stipulation of a mind-brain identity, rejects all talk

of mind by professing faith in the eventual reducibility of all mentalistic descriptions into neurophysiological terms. The second thread, which has often intertwined the first, is the behavioristic redescription of mental phenomena in terms of observable behavior and environmental contingencies. Both the brain and behavior are, in principle at least, publically observable and measurable. Both can be assumed to develop through deterministic causal sequences that fit comfortably within the paradigms of physical science, thus eliminating the need for dualistic language in description and explanation. Both promise the possibility of prediction and control of behavior.

The mind-brain identity theory, "reductionism" in the strict sense, has led to great strides in understanding brain functioning but it has not done much at all to advance our understanding of character. Neuroscientists have found distinctive profiles in the brains of schizophrenics, but such dysfunctions clearly operate on a different level than character formation. The possibility of developing neurological profiles of highly aggressive, potentially criminal brains has also been recently advanced (though not for the first time -- the 19th century phrenologists similarly claimed to have found the lobe where criminal propensities were localized). Awash in controversy as this latter suggestion has been, the connection of aggression to hormones at least makes neurophysiological profiling of this sort plausible. The possibility of identifying profiles for personality

characteristics acquired by learning, however, is considerably more problemmatic.

While the jury is still out on the potential of the neurosciences to manage anything approaching a truly useful reduction of mental life to biochemical terms, other investigators have been busily at work turning translating mental phenomena into behavioral descriptions of the sort that biochemistry might plausibly explain. The most famous name in this regard is Ivan Pavlov, whose experiments with salivating dogs, meat, and buzzers around the turn of the century have become the standard introduction to psychology for millions of high school children. It is interesting that, as famous as Pavlov's concept of the conditioned reflex has become, it has never played a major role in behavioral psychology outside Russia (Robinson 1986, 420):

> The point, of course, is that it was not his studies of the conditioned reflex that made Pavlov a figure to be contended with; it was the *theory* advanced on the basis of these studies. . . . In the broadest terms, the Pavlovian theory requires that all so-called psychic functions are reducible to reflex mechanisms within the brain. By the frequent association of a neutral stimulus with one having unconditional biological significance, the former comes to have the power of eliciting responses originally produced by the latter only. Stimuli thus associated are now conditional (or conditioned) stimuli. (*Ibid.*, 422)

While conditioned reflexes hadn't been isolated and analyzed to this degree previously, the concept certainly wasn't difficult for anyone who had ever engaged in casual introspection of their salivary processes in the moments leading to dinner. What was new were the controlled experimental approach and the careful scientific

measurements that Pavlov brought to this study, and the addition of several new "principles" to the associationists' list -- for there was little question but that Pavlov was still operating within the general causal framework first advanced by the associational psychology:

> If [conditioned stimuli] are presented repeatedly without the application of the unconditioned stimulus, they will lose their power of elicitation; that is, *extinction* will occur. Not only does the specific, conditioned stimulus acquire the power of the unconditioned stimulus, but those stimuli physically similar to the conditioned stimulus acquire this power by *generalization*. (*Ibid*., 420)

There were other principles to Pavlov's psychology, such as radiation and excitation, but extinction and generalization proved to have the most staying power. Along with the more fundamental concepts of conditioning and reinforcement, these provided much of the basis for later behaviorism.

The criticism of Pavlov's approach came first and foremost from adherents of what came to be known as Gestalt psychology. These researchers demonstrated in varied and clever ways that things weren't as straightforward as Pavlov indicated. It was shown through a variety of experiments, for instance, that damage to the neural pathways that presumably carried a conditioned reflex had little or no affect on the anticipated response, which led some to propose that the brain functions as a whole (equipotentiality) and must be understood as such (*Ibid*., 422). The gestalt psychologists did not deny the existence of

conditioned reflexes, but they questioned both Pavlov's neural explanation for them and the prominence assigned them in his system:

> It is one thing to assert that the conditioned reflex comes about by virtue of the formation of reflex associations among cortical neurons but quite another to suggest that the brain is capable of *only* such connections . . . Reflex organization within the brain is but one of the many forms of organization available to so complex a system. (*Ibid.*, 416-7)

Ultimately, however, Pavlov's conditioned reflexes were simply superceded by behaviorism, the approach to empirical psychology first laid out by John Watson in the years leading up to World War I. In his first published article in 1913 Watson laid out the behavioristic thesis in unmistakable terms:

> Psychology as the behaviorist views it is a purely experimental branch of natural science. Its theoretical goal is the prediction and control of behavior. Introspection forms no essential part of its methods, nor is the scientific value of its data dependent upon the readiness with which they lend themselves to interpretation in terms of consciousness. The behavior-ist, in his efforts to get a unitary scheme of animal response, recognizes no dividing line between man and brute. The behavior of man, with all its refinement and complexity, forms only a part of the behaviorist's total scheme of investigation. (Watson "Psychology as the Behaviorist Views It" 1913, in Robinson 1986, 405-6)

Watson accepted Pavlov's conditioned reflexes as the "unit" of behavior and agreed that "all the more complex forms of behavior were compounded of these units" (*Ibid.*, 410). What set behaviorism apart from Pavlov's physiological psychology were two essential differences in approach. First, Watson proposed to explain psychological phenomena primarily through behavioral redescriptions rather than through physiological reduction. While he expected physiology to one day

provide the ultimate explanations of behavior, he believed a behavioral psychology was required to purge the field of fallacious mentalistic concepts and provide a workable basis for physiological reduction. His worthy successor as spokesman for behaviorism, B.F. Skinner, went further and argued forcefully for the independence of a science of behavior which provides us relatively unintrusive means for the control of behavior along with a scientific framework for understanding "feelings and introspectively observed states" (Skinner 1974, 235-6). Behaviorism and physiological psychology are thus complementary: "What [the physiologist] discovers cannot invalidate the laws of a science of behavior, but it will make the picture of human action more nearly complete" (*Ibid.*, 236).

The second critical difference between Watson's and Pavlov's approach stems from a difference in their protocols for experimentally conditioning behavior. The behaviorists replaced Pavlovian conditioning with what they called "operant conditioning." Operant conditioning drew on the work of E.L. Thorndike, who set up primitive versions of the laboratory maze for cats to solve and reach the food outside:

> [Thorndike] generated a series of "learning curves" which showed systematic improvement with increased practice. On the basis of these and related findings, Thorndike presented his famous *law of effect* according to which behavior is determined by its consequences. (Robinson 1986, 408)

Pavlovian conditioning, as Bateson pointed out, represented a fatalistic world in which the behavior of the experimental animal could have no affect on the delivery of rewards: the buzzer sounds and, after a lapse of time, regardless of what the animal does or doesn't do, the food follows. Operant conditioning, on the other hand, delivers a reinforcing reward (or a negatively reinforcing punishment) contingent upon the animal's display of a particular item of behavior.

Thorndike's law of effect came as no surprise to anyone who ever raised children or trained a dog, but it nonetheless managed to shift the utilitarian tenets of associational psychology onto a firmer experimental (non-mentalist) footing. The effect was to replace teleological reasons with more efficient, more scientifically acceptable causes:

> Salivation is elicited by certain chemical stimuli on the tongue . . . because the effect has contributed to the survival of the species. A person may report that a substance tastes good, but it does not elicit salivation because it tastes good. Similarly, we pull our hand away from a hot object, but not because the object *feels* painful. The behavior occurs because appropriate mechanisms have been selected in the course of evolution. The feelings are merely collateral products of the conditions responsible for the behavior. (Skinner 1974, 52)

While it seems counter-intuitive to say that we don't pull our hand from the fire because it hurts, Skinner is certainly correct in this regard: the pull- back reaction typically begins even before the fact of pain is noted and a course of appropriate action can be decided upon. Jerking one's hand back is not the result of a goal oriented

reasoning process, but of an unconditioned reflex developed through the contingencies of survival over the course of evolution. And there is no reason to think that a conditioned reflex operates any differently: the dog doesn't salivate at the sound of the bell in order to obtain food, but because the sound of the bell has become associated with food, the stimulus which sets off the salivation response. Operant conditioning might be a bit more complex, but the causal structure is essentially the same: the sight of a maze, which has also become associated with food, triggers the exploration response which has been rewarded previously. No reasons, just stimuli.

Skinner's references to "selection" and the "survival of the species" reflect an essential element in the explanatory strategy of behaviorism. While physiological psychologists, like Pavlov, place the explanatory emphasis for our aversive response to fire upon the identification (and ideally, the localization) of the reflex arc underlying it, behaviorists like Skinner take the question another step back, to seek an explanation for the reflex. Skinner faults Pavlov -- and Watson, too -- for an over-reliance on the push-pull causality of a mechanistic world view. His argument against over-reliance on the reflex arc parallels Bateson's argument against "dormitive hypotheses":

> At the moment, a reflex has only a descriptive force; it is not an explanation. To say that a baby breathes or suckles because it possesses appropriate reflexes is simply to say that it breathes or suckles, presumably because it has evolved in such a way that it does so. (*Ibid.*, 38)

Until such time as the neurophysiologists can actually trace the electro-chemical processes by which such reflexive behaviors transpire, Skinner suggests that we focus on "the process of selection which made them part of a genetic endowment" (*Ibid.*, 41). He notes that in identifying the role of selection, Darwin discovered "a kind of causality very different from the push-pull mechanism of science up to that time" (*Ibid.*). And Skinner argues that this kind of causality can be used to explain all behavior:

> Just as we point to contingencies of survival to explain an unconditioned reflex, so we can point to "contingencies of reinforcement" to explain a conditioned reflex . . .
>
> Thus, when a hungry organism exhibits behavior that *produces* food, the behavior is reinforced by that consequence and is therefore more likely to recur. Behavior that *reduces* a potentially damaging condition, such as an extreme in temperature, is reinforced by that consequence and therefore tends to recur on similar occasions. . .
>
> There are certain remarkable similarities between contingencies of survival and contingencies of reinforcement. Both exemplify . . . a kind of causality which was discovered very late in the history of human thought. Both account for purpose by moving it after the fact, and both are relevant to the question of a creative design. (*Ibid.*, 43-5)

Skinner's sense of the analogies between evolution and learning parallels Bateson's view to a surprising degree. Bateson also views both learning and evolution as stochastic processes, that is, as sequences of events combining a random component with a selective process "so that only certain outcomes of the random are allowed to endure" (Bateson 1979, 230):

> In basic theory, creative thought has come to resemble the evolutionary process in its fundamentally stochastic nature.

> Reinforcement is seen as giving direction to the accumulation of random changes of the neural system, just as natural selection is seen as giving direction to the accumulation of random changes of variation. (Bateson 1972, 255)

But where Skinner uses this analogy to argue that mind is no more necessary for explaining behavior than Mind is for explaining evolution, Bateson draws just the opposite conclusion -- that both thought and evolution are essentially mental processes, at least according to his criteria, as laid out previously in our discussion of Descartes (Bateson 1979, 149).

Bateson's basic approach to psychology clearly comes out of the same empirical tradition as behaviorism. His rejection of "factitious inner tendenc[ies], principle[s], instinct[s], or whatnot" as "dormitive explanations" -- as reified descriptions of behavioral processes pretending to be their causes -- is a basic tenet in Skinner's attack on mentalism. His belief in the essential continuity between mammalian and human psyches; his interest in the questions that Freud asked rather than the convoluted answers he gave; and, especially, his non-teleological understanding of purpose, all reflect Bateson's roots -- and Skinner's -- roots in the empirical, anti-idealist tradition of Anglo-American psychology.

Nonetheless, Bateson never considered himself a behaviorist. Recalling his days as a psychological researcher at the Porter-Langley Clinic, Bateson observes that back in the 1950's "the categorical

bankruptcy of behaviorism was then a matter of taste or smell rather than cogent argument":

> The behaviorists were even more obviously power hungry than the curers [psychiatrists]. One of them put the matter clearly: I had asked him why he, an organism whose actions were supposedly to be explained by the invocation of causes, was performing learning experiments on fishes. He said "Because I want to *control* a goldfish. (Bateson 1991, 188)

Taste is a greatly underrated criterion in scientific judgement, and in this case Bateson found sour the most prized fruit of the behaviorist enterprise. Recall that in his announcement of behaviorism in 1913, Watson stated that "Its theoretical goal is the prediction and control of behavior." If Bateson's resistance to this goal was a matter of taste, it was a taste sharpened by the experience of the second world war:

> It is hardly an exaggeration to say that this war is ideologically about just this -- the role of the social sciences. Are we to reserve the techniques and the right to manipulate people as the privilege of a few planning, goal-oriented, and power-hungry individuals, to whom the instrumentality of science makes a natural appeal? Now that we have the techniques, are we, in cold blood, going to treat people as things? (Bateson 1972, 162)

Skinner, whose 1971 bestseller *Beyond Freedom and Dignity* presented a sustained attack on the notion of autonomous man, would have rejected the unflattering characterization of his efforts while answering in the affirmative. Bateson suggests that such "excesses of 'behaviorism' can only be corrected by empathy" (Bateson 1993, 76). His distaste for this emphasis on control was so deep that he castigated his friend Norbert Wiener for importing it into cybernetics:

> [N]ote that the word "cybernetics" has become seriously corrupted since it was put into circulation by Norbert Wiener. And Wiener himself is partly to blame for this corruption of the conception in that he associated "cybernetics" with "control." I prefer to use the term "cybernetic" to describe complete circuiting systems. (*Ibid.*, 202)

More cogent arguments against behaviorism, however, soon became available to backup his taste. His own work on learning theory, for instance, was leading him steadily in directions opposed to the associational psychology on which behaviorism was based. As early as his work on *Naven*, he had observed certain uniformities in cultures that were difficult to explain on associational grounds:

> If we take the data from a given culture and sort them by subject matter, putting all the data which refer to sex in one heap, the data referring to initiation in another, the data referring to death in another, and so on, we get a very remarkable result. We find that similar types of order are recognizable in every heap. We find that, whether we are looking at the sex data, or the initiation data, or the death data, the system of classification of perceived objects and events (the *eidos* of the culture) is still the same. Similarly, if we analyze the heaps of data to obtain the system of linked responses and values (the *ethos*) of the culture, we find that the ethos is the same in each heap. Briefly, it is as if the same sort of person had devised the data in all the heaps. (*Ibid.*, 46)

These uniformities differ from culture to culture, so they cannot be due to innate human characteristics. But if they are learned, how can the associational learning theory of behaviorism account for such patterns? Bateson doubts it can:

> It would, I believe, be impossible to deduce these results, the uniformities within one culture and the contrast between cultures, from the simple associational learning theory from which we started. (*Ibid.*, 47)

The generalization principle proposed in the associational learning theory only covers "physically similar" stimuli, which might be stretched to cover symbolic similarity as in the phallic symbolism of an initiation rite; but that explanation seems increasingly inadequate as it is applied across various different contexts in which the patterns of classification, values, and responses remain congruent. Bateson had his own hypothesis:

> [T]hese ethological and eidological uniformities within the single culture, and the corresponding contrasts between cultures, are precisely what we would expect if, in addition to the processes postulating simple learning, there is a carryover from learning in one context which will influence later behavior in quite different contexts. (*Ibid.*)

The flaw in behaviorism, this suggests, is its inability to account for contextual learning. And since character formation, for Bateson, is precisly a matter of contextual learning, that is a flaw we must consider seriously here.

Bateson hoped that Gestalt psychology would one day provide the empirical foundations for an alternative to the associational learning theory, one that recognized the essential role played by the perception of patterns and the identification of contexts in learning. It was noted earlier that Bateson accepted Kant's basic premise, that the mind imposes order upon our experience as it is mapped and transformed through the processes of perception, understanding, etc.. The Gestaltists also owe a debt to Kant:

> The Gestaltists accepted the Kantian-Hegelian principle of the pure categories of the understanding; brought them to bear on studies of visual perception; and thereby provided a laboratory demonstration of the role of the mind in organizing and transforming the raw facts of experience. (Robinson 1986, 414)

The Gestaltists were successful in demonstrating the tendency of our perceptual processes to seek out and recognize patterns and wholes not physically present within the data of experience. And though Bateson does not cite him, he may also have been aware of E.C. Tolman's work on the cognitive aspects of learning, summarized in his book, *Cognitive Maps in Rats and Man* (1948):

> Tolman distinguishes between *performance*, which is under the control of rewards and punishments and *learning*, which occurs whenever a complex organism has perceptual commerce with the immediate environment. Rats permitted to run freely in a maze come to solve the maze more quickly on subsequent occasions when food-reward is introduced than do animals without the original "irrelevant" experience. This so-called *latent learning* is assumed to violate the law of effect which requires reinforcement if learning is to occur. (*Ibid.*, 416)

I assume that Skinner would reply to this argument by observing that the absence of an experimenter's reward does not preclude the rat's finding low-level reinforcement from simply finding its way out of a confining situation. And Bateson does not challenge the law of effect so much as the laws of association. Tolman challenged these as well:

> [A]n animal receiving reward by responding to, say, a circle five inches in diameter and not rewarded for responses to one that is two and a half inches will subsequently choose one of ten inches over one of five inches. That is, after originally learning the choice of "5" vs. "2 1/2," the animal, given the new choices "10" vs. "5," does not choose the "5" (with which all previous rewards

were associated) but, instead, chooses the *larger*. This, according to the Gestaltist, requires us to assume that what was originally learned was a *relationship* and not merely a physical value. This is taken as an instance of *transposition* in which the relational properties are abstracted from the stimulus elements. (*Ibid.*)

This supports very nicely Bateson's own less empirical, more theoretical argument against the associationism underlying the behaviorist position outlined above. Again, it's not clear whether he was aware of Tolman's work. Bateson himself, however, raises another question which he thinks "bridges the gap between the experimental work on simple learning and the approach of the Gestalt psychologists":

> This is not the simple type of question which is posed in most psycho-logical laboratories, "Under what circumstances will a dog learn to salivate to a bell?" . . . We are asking, "How does the dog acquire a habit of punctuating or apperceiving the infinitely complex stream of events (including his own behavior) so that this stream appears to be made up of one type of short sequence rather than another?"

Bateson tries to build the bridge by choosing as his example of a stream of events "any three events in a human interchange," choosing the number three to provide a triad analyzable in terms of stimulus-response-reinforcement:

> It is instructive to attempt analysis of an ongoing interchange between A and B. We ask about any particular item of A's behavior: Is this item a stimulus for B? Or is it a response of A to something B said earlier? Or is it a reinforcement of some item provided by B? Or is A, in this item, consummating a reinforcement for himself? Etc.
>
> Such questions will reveal at once that for many items of A's behavior the answer is often quite unclear. Or if there be a clear answer, the clarity is due only to a tacit (rarely fully explicit) agreement between A and B as to the nature of their mutual roles,

> *i.e.*, as to the nature of the contextual structure which they will expect of each other. (Bateson 1972, 298-9)

In the laboratory situation, the scientist imposes the contextual structure by defining and controlling what will count as stimulus, response, and reinforce-ment. And the dog will learn to recognize that contextual structure so that in future situations it will itself attempt to impose that contextual structure onto the sequence of events. Thus, as noted earlier, the dog trained to await the rewards after a buzzer regardless of anything it does to bring them about, will perceive its own responses as ineffective and non-instrumental. It will not eagerly run through the maze or push its muzzle against buttons or engage in other trial and error patterns of response. It will develop an expectation of non-instrumental contexts even in what the scientist perceives as very different situations, and what seems like a form of canine fatalism will result. The dog that is rewarded for its efforts, on the other hand, will learn to expect and impose instrumental contexts, and this contextual learning will shorten its learning curves in what seem (to the associationalist, at least) like very different contexts.

Though behaviorists recognize that behavior is embedded in circular causal sequences subject to feedback in the form of reinforcement, they are wedded to a model of efficient causality in which there is no place for hierarchy, for learning about and even altering parameters as well as the variables that fall within them. And so the formation of

character is explained by behaviorists in terms that are congruent with learning to run a maze: certain social behaviors are presumed to be reinforced by parents and peers, and so character is formed. Perhaps this accounts for how little in the way of specifics the behaviorists are able to provide on just how specific character types are formed.

Skinner, indeed, is uncomfortable with the notion of character types or even character traits, since they suggest some inner, mental cause of behavior:

> Many supposed inner causes of behavior, such as attitudes, opinions, traits of character, and philosophies, remain almost entirely inferential. . . . Nevertheless, terms referring to traits of character are freely used in explaining behavior. A politician continues to run for office because of "ambition," makes shady deals because of "greed," opposes efforts to eliminate discrimination because of "moral callousness," holds the support of his followers because of his "leadership qualities," and so on, where no evidence of the inner causes is available except the behavior attributed to them (Skinner 1974, 175-6)

Skinner does, however, propose a very interesting explanation of certain key traits of character, such as ambition, determination, dedication, and perseverance (which he defines as "continuing to respond over long periods of time without results" (Skinner 1974, 66)). For Skinner, such traits constitute patterns of behavior and not the causes of them. Their causes, of course, lie in the contingencies of their reinforcement -- and in the case of these traits, a distinctive pattern of reinforcement. Traits like ambition, determination, and so on, which all seem closely allied, all work to support the achiever's pursuits of her goal despite frequent failures

or a lack of reinforcement. Skinner attributes such traits to the phenomenon of intermittent rather than constant reinforcement:

> Variable-ratio schedules, in which reinforcement occurs after a given average number of responses but in which the next response to be reinforced cannot be predicted, are particularly interesting. A favorable history in which the average is slowly enlarged is said to generate will power, together with large amounts of psychic energy, or libido. . . .
>
> The same variable-ratio schedule affects those who explore, prospect, invent, conduct scientific research, and compose works of art, music, or literature . . . (*Ibid.*, 66-7)

In other words, a musical child who finds her growing skills regularly reinforced by praise from parents and peers will likely continue to practice --and even redouble her efforts -- in later years, as applause becomes more conditional on the quality of performance. Skinner notes that a similar pattern of variable reinforcement can make gambling a hard habit to break: "an early run of good luck which grows steadily worse may create a dedicated gamber" (Skinner 1971, 33).

The problem with this account, according to Robinson, is that the laws underlying behavioral theory seem inadequate to explaining the effect:

> It has been found that behavior brought under the control of reinforcers that have been applied irregularly during the acquisition of a response is extremely resistant to extinction. The ability of random reinforcement to result in virtually unextinguishable responding is one of the more striking demonstrations in all of psychology. Yet there is no formulation of the law of effect that permits one to predict such an effect, nor is the effect logically deducible from the law that is asserted as covering it.

Bateson's explanation for this phenomenon, of course, is that what is being learned in the variable reinforcements of gambling and musicality is a context of interaction in which variability of outcome is expected and accounted for. By distinguishing between levels of learning, Bateson can explain why the unlucky gambler discards his "unlucky dice" instead of his dysfunctional habit, and why a poor performance will induce the musician to more practice instead of more easily rewarding pursuits.

Apart from this problemmatic analysis of the sources of perseverance and dedication, Skinner is vague about the contingencies of reinforcement that might lead one to spend a lifetime in pursuit of achievement. As the dominant orientation within 20th century experimental psychology, however, it was bound to spawn some researchers who would grapple with the problem more directly. The most notable contribution from this tradition to the question of achieving behavior grew out of research begun in the late 1940's under the leadership of David McClelland.

McClelland's work does not follow the strictly behaviorist principles laid down by Skinner, but it clearly falls within the experimental, anti-mentalistic, associationist tradition in Anglo-American psychology that the behaviorists helped lay out. McClelland considered his work a contribution to the field of motivation theory, thereby re-introducing a term which Skinner thought the science of

behavior could well do without; but the motivation theorists are very clear in their insistence that the term refers to nothing more than a theoretical construct.

Theoretical constructs are of various types, depending on how they are arrived at and used in devising theory. They are not the names of observable phenomena but are rather the formal terms which are mathematically or in some other way systematically related so as to provide an explanation for some class of phenomena. "Momentum" is a theoretical construct of this sort, defined as the product of mass and velocity and employed in Newton's mathematical models for explaining mechanical phenomena. The validity of a theoretical construct is dependent not only on its coherence and utility within the theory but on how well "anchored" the theory as a whole is in empirical observation. The construct may thus be valid without having any observable empirical referent. McClelland does not claim that there are things in our minds or brains called "motivations" that we can surgically dissect or even introspectively inspect. He claims only that we need motivations to explain certain aspects of human behavior. Skinner explains the status of the motivational construct this way:

> A rat does not always respond to food placed before it, and a factor called its "hunger" is invoked by way of explanation. The rat is said to eat only when it is hungry. It is because eating is not inevitable that we are led to hypothesize an internal state to which we may assign the variability. Where there is no variability, no state is needed. Since the rat usually responds to a shock to its foot by flexing its leg, no "flexing drive" comparable to hunger is felt to be required. (Skinner 1938, 141)

Motivation theory, in some form or other, is as old as speculation on the nature of will. It is an attempt to find "an agency or factor or force that helps to explain behavior" (Bolles 1967, vii). Experimental psychologists, however, like modern physicists, have largely abandoned the notion of "cause" for the more neutral description of *correlations* by which the behavior to be explained is said to be "under the control" of, or a "function" of antecedent variables. The physical proximity and even temporal priority to the effect that is required of efficient causes is often irrelevant to the mathematical relationships revealed by correlation.

In the context of experimental psychology, motivation plays the role of an "intervening variable" between the stimulus and the response it generates. The motivational construct -- whether in the form of a drive, an instinct, a need, or whatever -- is considered necessary by those in the field to resolve certain puzzles for the standard stimulus-response model. What is it, for instance, that makes a rat work harder for a food reward when he has been deprived of food for several days? How can the simple conditioning model explain the fact that when the initial response to a stimulus is blocked, the rat comes up with various other responses all geared toward securing that desired reinforcement? Motivation is a way of explaining this variability.

McClelland's work on achievement motivation arose out his attempts to go beyond the sort of motives that are most easily provoked in lab

animals, like hunger, and to understand "the kind of motives which actually are important in the lives of human adults" (McClelland 1953, 320):

> Psychology has been impoverished by the tacit assumption that the science of human behavior must be built on muscular responses which preferably will activate a machine -- all this despite the fact that man's obvious difference from other animals lies in his superior symbolic capacities. Thus if we can find and develop systematic objective ways of classifying and counting his symbolic behavior we will come much nearer getting a complete picture of man's nature. (*Ibid.*, 323-4)

His objective instrument for "classifying and counting symbolic behavior" was the *Thematic Apperception Test* developed by H.H. Morgan and H.A. Murray in 1935. The TAT calls for subjects to view a series of pictures and then to write short stories about them, the idea being that "a good place to look for the effects of motivation is in fantasy" (*Ibid.*, 107). The content of the resulting stories or "thought samples" is then analyzed for imagery and phrasings that suggest various common motivations. It was shown, for instance, with respect to that old standby, hunger, that stories written after increasing periods of food deprivation revealed increasing references to food. The question for McClelland was whether there was some way of arousing a distinctly human achievement motive in the laboratory so that it could be similarly isolated, manipulated, and measured.

His research team found that presenting the TAT to one group of male subjects as a measure of intelligence and leadership, while a control group was told it didn't measure anything important, led to a

marked increase in achievement imagery in the first group's stories. Inducing a similar result in women, however, required a presentation stressing social acceptance, and was not as conclusive; apparently, intelligence and leadership and achievement in the 40's and 50's were strongly associated with males alone. Achievement imagery included anything that might indicate "competition with standards of excellence," which was McClelland's operating definition of achievement. While this approach didn't quite parallel the measurement of the hunger drive since hunger presumably doesn't require any verbal cues at all, the results were different enough between the two groups to convince McClelland that they had tapped into a pre-existing motivational condition. He called this motivation or need to achieve "n-Ach."

Once the technique was refined, they attempted to validate it by administering the instrument to scientists and other presumed high achievers. The results were judged to lend credence to their efforts, and so with TAT in hand they set about trying to relate high n-Ach scores to various behavioral consequences and possible antecedents. The search for antecedents, that is, for the origins of achievement orientation, were pursued through correlations with measures gained from a wide assortment of interview strategies and test measurements. McClelland began with a reasonable sounding hypothesis:

> [T]hose cultures or families which stress "competition with standards of excellence" or which insist that the child be able to perform certain tasks well by himself -- such cultures or families should produce children with high achievement motivation. (McClelland 1953, 275)

The problem with that hypothesis, Bateson would point out, is that the words "stress" and "insist" are opaque as to the actual interactions through which such expectations are communicated from parents to children. Anyone who has raised children knows that the connection between exhortations and results is tenuous. Fortunately, the data McClelland's team eventually gathered did give some idea of what specific sorts of activities on parents' part corresponded with high and low n-Ach scores. McClelland summarized their findings this way:

> The data we have to date strongly support the hypothesis that achievement motives develop in cultures and in families where there is an emphasis on the independent development of the individual. In contrast, low achievement motivation is associated with families in which the child is more dependent on his parents and subordinate in importance to them. In both types of home there may be plenty of love and affection, but in the homes of the "highs" the son is more apt to "talk back" without deep feelings of guilt and to go off on his own rather than submit to the standards imposed on him by his parents. (*Ibid.*, 328-9)

It should be noted that many different correlations were uncovered over the course of McClelland's research, and while many lent support to his hypothesis, many others had to be explained away or interpreted to fit. It was found, for instance, that high n-Ach college boys "tend to perceive their fathers as unfriendly and unhelpful" while high n-Ach high school boys reported the opposite (*Ibid.*, 280). McClelland suggests that, for the college students, friendly and helpful fathers may be those who don't give their sons enough room to make decisions or try things on their own. For the high school students, on the other hand, who come from a broader, hence generally lower socio-economic

background, "a rating of 'unfriendly' . . . may mean behavior which is objectively much more unfriendly than what the college student means by 'unfriendly'" (*Ibid.*, 282). Or, he adds, it may just indicate a difference in perception among college boys who are away from home for the first time "attempting to break loose from dependency on [their] parents," and who regard "any attempt to help [them] as an unfriendly, interfering act" (*Ibid.*).

While these seem plausible enough as explanations for the anomaly, there are more anomalies and more explanations than one would like to see. There are positive correlations between high n-Ach boys and unsuccessful fathers, between high n-Ach boys and warmly supportive mothers, between high n-Ach boys and a preference for cool as opposed to hot colors, and on and on, all raising at least as many questions as they answer. And that is precisely the problem with the current empiricist emphasis on correlation rather than causality: correlations don't explain, they demand explanation.

Noting that girls did not respond to the same achievement cues as boys and that sons of German and Italian families are thought to grow up in less individual-istic families though they seem no less motivated to achieve than sons in other cultures, McClelland suggests that it is "too simple to reason that a high achievement motive develops exclusively out of particular phenotypic parent behavior" (*Ibid.*, 329). And he sounds the call for more research.

All these qualifications aside, however, McClelland is convinced that the data on independence training as a whole supports the connection with n-Ach. And the arguments he makes and the data he provides, taken as a whole, are fairly convincing. It is hard to imagine someone with a lifelong commitment to achievement who is not independent minded, who has not learned to accept challenge, to take risks, and pursue mastery. The finding that those who are oriented towards achievement come from families where constraints are fewer and shorter lived and where expectations that the child will master things on his own are imposed earlier and over a broader array of circumstances is certainly interesting. While it isn't exactly counter-intuitive, neither is it obvious.

McClelland's caution about the generalizability of these findings across gender and culture lines, however, is critical. Consider in this connection Bateson's study of the differences in national character that we examined earlier. The boastfulness that is (to the English, at least) so characteristic of the American male was explained there in terms of the tendency of American parents to encourage their child "to show off his independence" (Bateson 1972, 102). When an American boy learns to dress himself or tie his own shoes or ride a bike on his own, he is warmly applauded by his parents because they share his delight and because they want to encourage him to do more things on his own and thus become less dependent on them. This approach to what Bateson calls the "psychological weaning" of the young

is not shared by middle and upper class English families who accomplish that goal through nannies and boarding schools. Is this emphasis on exhibiting one's independence a peculiarly American mindset that has somehow worked its way into McClelland's analysis?

The same question could, of course, be asked of Nietzsche's emphasis on power. Winston Churchill is reputed to have said of the Germans that they are always either "at your feet or at your throat," and Bateson confirms that in the childrearing practices of German parents "the father's dominance is much stronger" than in American families (*Ibid.*). Mightn't similarly extensive correlations on the n-Ach of German boys reflect this pattern of difference?

To their credit, McClelland and others that followed him in the research on achievement motivation confronted these questions, pursuing various often ingenious cross-cultural and historical investigations of n-Ach and its numerous correlates. Interestingly, McClelland reports that the data on independence training of German boys is indeed very different from the American profile, in that "achievement training tends to come much later . . . if at all" (McClelland 1961, 346). In fact, expectations placed on American (and, for that matter, Japanese) boys by age 8 are often not expected of their German counterparts until the age of 12 or 14. McClelland insists, nonetheless, that his hypothesis holds since "German mothers who expected achievement earlier (again at the same average age as the Japanese mothers) had sons with

high *n* Achievement" (*Ibid.*, 347). Apparently, the age of 8 is a key since Brazilian mothers who typically demand that their children begin to do things on their own even earlier than American or Japanese mothers, typically produce low n-Ach boys; but those Brazilian mothers who delay those demands till later produce higher n-Ach sons.

McClelland's later cross-cultural and historical research on achievement motivation is driven by another, more sweeping hypothesis which is of interest to us here. Finding data that seemed to confirm a high correlation between n-Ach and economic development in various cultures, McClelland set out to confirm and explain one of sociologist Max Weber's well known theories:

> Weber . . . described in convincing detail how the Protestant Reformation produced a new character type which infused a more vigorous spirit into the attitude of both workers and entrepreneurs and which ultimately resulted in the development of modern capitalism. If the Protestant Reformation repre-sented a shift toward self-reliance . . . [then it] might have led to earlier independence and mastery training, which led to greater *n* Achievement, which in turn led to the rise of modern capitalism. (Ibid., 47)

In other words, independence and mastery training might provide the key intervening variables in Weber's theory. McClelland provides some plausible evidence to the effect that Protestant parents expect more independence and mastery at earlier ages than Catholic parents, and that predominantly Protestant countries have higher rates of economic development than Catholic countries. Again, there are many anomalies and explanations throughout his presentation, and I suspect there are

so many variables at work here that such studies can never be more than plausible. Still, it is a good indication of the potential scope of McClelland's approach that such broad historical and cross-cultural explanations can even be attempted. Even a problemmatic empirical base is appreciated after so many centuries of armchair introspection and speculation.

Unfortunately, perhaps, the researchers on achievement motivation who have come after McClelland seem to lack his cross-cultural and historical interests as well as his synthesizing abilities. Subfields have emerged within the general area of achievement research around related psychological entities, including "test anxiety" (which more parsimonious theoreticians attempted to translate as "too much n-Ach will defeat itself" (Atkinson 1964; Hill 1982)); and "fear of success" (Horner 1968). Inadequacies in the theory with respect to achieving behavior in specific experimental situations have led other researchers into devising an ingenious array of qualifications to the original theory.

Later studies, for instance, have questioned the optimal timing of independence and mastery demands, or whether the timing is even that important compared to reinforcing independent behavior or achieving, whenever it occurs. The type of reinforcement employed has also been the subject of study, with at least one study showing that test anxiety correlates positively with the amount of punishment in the home and

negatively with more positive reinforcement (Arkes and Garske 1982, 274).

Plowing through all this subsequent research reminds one of Bateson's frustration with the behavioral sciences a quarter of a century ago which, he said, relied on "heuristic" concepts "so loosely derived and so mutually irrelevant that they mix together to make a sort of conceptual fog which does much to delay the progress of science" (Bateson 1972, xviii). As concepts like "test anxiety" and "fear of success" are set forth as necessary supplements to the need for achievement, theoretical positions are preserved at the expense of comprehension: Do "anxiety" and "fear" denote different sorts of constructs? Is "fear of success" a motivational construct like a need or does it actually denote an identifiable emotion? How do anxieties, fears, needs, and so on interact? The inductive approach pursued through instruments like the TAT and the TAQ (the Test Anxiety Questionnaire), and all the others whose results their results are correlated with never quite seem to arrive at a coherent theoretical position. As Bateson points out:

> About fifty years of work in which thousands of clever men have had their share have, in fact, produced a rich crop of several hundred heuristic concepts, but, alas, scarcely a single principle worthy of a place in the list of fundamentals. (*Ibid.*, xix)

The difficulties in devising a coherent theory of motivation make Skinner's more radical behaviorism, which flatly rejects all attempts to explicate the mental and physical processes underlying behavior,

look all the more attractive. Bateson also shows little concern for detailing the mechanisms underlying behavior, but his approach remains quite different. A brief lookat another line of empirical research on achievement motivation should make their differences clearer.

If McClelland's work failed to live up to Skinner's standard of anti-mentalism because it accepted motivation as a theoretical construct, attribution theory was even less likely to win his endorsement. Initially developed by Fritz Heider back in 1944, attribution theory looked at how individuals assessed the motives and causes of their own behavior (Arkes and Garske 1982, **xxx**). A key distinction centered on whether a subject attributed her performance to personal or to environmental factors -- to ability and effort or to task difficulty and luck. In the 1970s, research was initiated in various quarters to connect attribution theory to achievement motivation (*Ibid.*).

The results were not unexpected. It seemed that persons highly motivated to succeed tended to attribute their successes internally and to take pride in their accomplishments; those motivated rather to avoid failure attributed their successes to external factors, thus taking less satisfaction in them. These findings helped clarify the sorts of reinforcement that perhaps led some persons to pursue opportunities to achieve and led others to avoid them. Attribution theory thus promised

to become a valuable complement and clarification of achievement theory.

Interestingly, more recent research specifying relations among all the variables in the attribution/achievement scheme yields results consistent with a simpler self-esteem or self-confidence model: achievement motivation seems to vary directly according to one's perception of one's own ability and confidence of success (Arkes and Garska 1984, xxx). That confidence in one's competence affects one's motivation to achieve seems rather to be expected. But notice that the motivational construct is now connected with the subject's reports of his own perceptions and interpretations. What was but a construct articulating a variable relationship between stimulus and response is now part of a decidedly mentalistic approach to behavioral explanation.

Skinner, as we noted, rejected the motivational construct for just this reason: it suggested a mentalistic explanation for behavior which he was dogmatically committed to stamping out. While Skinner claimed that his atheoretical posture included physicalistic explanations as well, urging that a science of behavior be pursued in behavioral terms alone, his clear expectation is that one day those behavioral terms will be mapped onto a fully reductivist neurophysiology.

Bateson, on the other hand, is opposed to mentalistic explanations not because they compete with a behavioral vocabulary which is ultimately

more readily reducible to neuro-physiological terms, but because they focus attention on internal rather than interpersonal factors:

> Such an explanation, which shifts attention from the interpersonal field to a factitious inner tendency, principle, instinct, or whatnot is, I suggest, very great nonsense which only hides the real questions. (Bateson 1979, 133)

What would most draw Bateson's attention in the welter of research around achievement motivation are precisely those items like parental demands for displays of independence and their reinforcement by punishment or reward that reveal the interactions and relationships between parent and child. It is certainly intriguing to learn that high n-Ach is found in sons whose displays of independence are rewarded by hugs while low n-Ach is found in sons whose failures to exhibit their mastery are met with punishment, since those findings conform so closely to Bateson's model of psychological weaning, American-style.

Bateson typifies the American family as one in which the father dominates (slightly) and the children submit (slightly), with a stronger emphasis placed on both parental succorance/childish dependence and on parental spectatorship/ childish exhibitionism. While the child is encouraged to exhibit independence as a way of easing both parent and child out of the succorance/dependence relationship, a warm hug given as reward for such displays reaffirms parental succorance, while punishment shifts the emphasis towards a pattern of parental dominance and childish submission. Punishment thus serves as a more disruptive element, conceivably interrupting the

subtle linkage and evolution between the other two patterns of interaction. In other words, this is the sort of data that Bateson's approach can utilize and make sense of.

Less amenable to Bateson's approach is McClelland's emphasis on a child's embrace of competition with standards of excellence. McClelland tends to conflate this factor in the development of achievement motivation with the mother's demands that a child master certain activities on his own, which is closely related to independence training. Independence stresses what the child is expected to do; competition with standards of excellence stresses how it is supposed to be done. It wouldn't seem that the interaction between parent and child would differ all that much then between the two concerns; perhaps the warm hug of approval might be withheld a bit longer, or some element of punishment might be introduced in response to poor efforts on the child's part. These possibilities aren't explored in McClelland's original research, however, and in his later work connecting n-Ach with economic development and with capitalism, "competition" is (implausibly) not even listed in the index while the needs for power and affiliation are.

The problem with the notion of "competition with standards of excellence" as a motivational factor, at least from Bateson's standpoint, is that its origin in interpersonal relationships is obscured. The fact is that children begin to engage in competition

with one another at a very early age -- long before they begin to internalize abstract standards of excellence to regulate their own behavior. They compete for parental affection, they count up who gets more gifts at the holidays, they chafe under comparisons with older siblings or peers who are said to have mastered things at their age that they haven't. They argue over who's the strongest, tallest, cutest, smartest, and best liked. Gradually, they come to rank themselves on a less personalized scale and even strive to improve their station.

By conflating "competition with standards of excellence" with independence training, McClelland overlooks essential differences between the patterns of interaction underlying them. Both succorance/dependence and spectatorship/ exhibition are complementary schismogeneses, in Bateson's terms, reinforcing different but interlocking behaviors on the parties involved. Competition, however, is a symmetrical schismogenesis in which both parties are driven to the same sorts of behaviors at increasing levels of intensity. Had McClelland been more aware of this difference, he might have included some very different data in his search for correlations.

The problem with additional correlations, however, is that, like experimental psychology generally, McClelland generates a welter of data with very few principles for organizing it. He speculates on how an unfriendly father may interact with a warmly nurturing mother and

how both may interact with early independence demands and so on, but it is very hard to translate such speculations into contingencies of reinforcement that can be experimentally confirmed. The associative laws that stipulate the importance of repetition and intensity set all these contingencies on a continuum from strong to weak associations, so that the possible permutations are endless. Lacking the principles of positive and negative feedback and hierarchical organization, it is hard to see how McClelland could ever get beyond speculation in moving from innumerable correlations to a coherent explanation.

McClelland's data remain, nonetheless, intriguing. It is time we turn this data, along with the theories of earlier thinkers, over to Bateson's cybernetic analysis to see what sense can be made of it.

CHAPTER 5

ANALYSIS

Understanding Achievement within Bateson's Ecology of Ideas

Before we begin our analysis, it might be helpful to review the strategy guiding our inquiry, and identify how far we've gotten as well as how we've gotten here. Recall that since Bateson himself barely touched on the question of achieving behavior and thus generated no research data of his own, we proposed to review how others have approached the question and consider how Bateson might have assessed and even drawn on those approaches given the tools at his disposal. We have certainly covered a lot of ground.

We began with the Greeks and with their (shifting) concept of *arete*, meaning virtue or excellence. We examined the common explanation the Greeks provided for why men pursue arete, which was to gain honor; we looked at Aristotle's theory of how character is formed; and we analyzed Plato's reworking of the common explanation into a more profound account of the pursuit of achievement in terms of the desire humans share with all mortal beings for immortality. Some of the

features that make for adequate explanation were also introduced at this point.

We then identified the fundamental problem running through the Greek account as it developed from Homer through Plato and Aristotle, which is its reliance on final causality, a teleological explanation of human behavior which is difficult to square with the scientist's insistence that causes should precede their effects. The gradual ascendance of efficient over final causality in the scientific thinking of the Rennaisance period was recounted, with particular attention to Descartes' uncomfortable compromise -- the dualism of mind and body which forced so many thinkers coming after him to opt for one form of causal explanation or the other.

The two traditions which arose in reaction to Cartesian dualism, the one trying to reduce the mental world to physical terms, the other taking the opposite approach, were then retraced from their initial conceptualizations through their reactions to the skepticism and critique of Hume and Kant, to the point where each was finally able to produce a serious contribution to the question of the sources of commitment to achievement. Nietzsche's approach to an explanation of achieving behavior, however, still relied on a teleological model that he himself could not fully embrace. And McClelland still assumes the efficient causal model of associationist psychology despite all the trappings of statistical correlation that are supposedly neutral on the

subject of causality. That each of these explanations draws on a model of causality which their authors can not fully justify in terms of theory supports Bateson's contention that it is time to build a new bridge to the ancient dichotomy of form and substance.

Along the course of this historical review, we have also reviewed the principal elements of Bateson's own theoretical positions on the relationship of mind and body, form and substance, and final vs. efficient vs. formal causality. And we have sketched out some of Bateson's likely reactions both favoring and against the few serious alternatives that have been put forth on how to understand the human pursuit of achievement. It is time to begin pulling this data together, to see whether Bateson's ecology of ideas might offer us another way to resolve our question.

We have framed the question of how a lifelong commitment to achievement is formed in terms of character development. And the explanations that we have uncovered, from the Greeks to the present, have all framed the question in much the same way. Although Bateson insists that all "characterological adjectives" should be redefined as bi-polar descriptions of social interactions, it is still a bit surprising to find, as we have, that each of the major historical accounts can be characterized in terms of a specific *schismogenic* interaction. This is even more surprising when we consider that, in all his writings on the subject, Bateson mentions hardly more than a

half dozen different schismo-geneses, and that the explanations we have reviewed involve almost all of them: the Greek account in terms of honor is redefinable into pride/admiration; Nietzsche's will to power equates to dominance/submission; and McClelland's various factors, as we've seen, involve succorance/nurturance, spectatorship/ exhibition, and competition. The only schismogenic interactions among individuals in Bateson's writings that are not mentioned are rivalry (which is a form of competition) and love. This raises a number of questions.

We might ask first whether, perhaps, Bateson's redefinition of all these expla-nations into schismogenic terms signals a subtly disguised, quasi-metaphysical principle at work, like Nietzsche's will to power, which in effect redefines all behavior into schismogenic terms? Might all interactions between two or more people be somehow schismogenic? That would be a discomforting thought, since schismogeneses are, by definition, marked by positive feedback and instability. And the answer is clearly no. Asking a stranger for the time and receiving that information is hardly a schismogenic interaction. Bateson also mentions reciprocal behaviors as a distinctly non-schismogenic class of inter-actions, as in cultures where the potentially symmetrical roles of buyer and seller are regularly reversed, so that relationships remain stable (*Ibid.*, 69). So not all interactions are schismogenic.

Nor are all cultures and the character types they generate typified by one or another pattern of schismogenic interaction. Although

Bateson offers evidence to support our stereotypes of Germans as dominant/submissive and of Americans as competitive, he does not offer his half dozen schismogeneses as a typology of cultures and character types. Bateson refers to the Balinese culture, for instance, as "non-schismogenic," and reports finding no schismogenic sequences there. Instead, he details various patterns of interactions by which Balinese parents teach their children to avoid or to abort schismogenic sequences (Bateson 1972, 112-3).

The fact that, in each of the theories we've examined, the character trait which leads to pursuit of achievement is forged through apparently schismogenic social interactions, is perhaps attributable then to the nature of achieving behavior itself. In that case, it would be a useful insight. It would suggest a way to identify cultures likely to produce achieving behavior: To the extent that achievement represents a distinctive or even unique attainment that sets one apart from one's peers, it would require an element of mobility within the social relationships of a culture and a genuine receptivity to innovation and invention. Balinese culture produces great beauty in its artifacts, music, and dances but these are typically just reworkings of long established forms so that social relationships are held stable. Rather than seeking to change their roles in society, the Balinese seek to perfect them (*Ibid.*, 117). It is not that potentially schismogenic interactions are unknown, but that they are not allowed to develop as they might elsewhere.

This is probably true of many "primitive" cultures which have managed to retain essentially the same way of life over long periods of time. Although these cultures may recall the exploits of various heroic and Promethean figures from their ancestral lore and be surrounded by artifacts and practices indicating past achievements, the sorts of activities by which individuals currently in the group could set themselves clearly apart from and above the rest might routinely incur negative feedback in the form of social sanctions and disfavor. There are parallels here to small town life in our own societies.

The fact that some cultures have learned to control potentially schismogenic social interactions may tell us something else. Although the commitment to achievement clearly differs from culture to culture and schismogenic sequences may be more or less pronounced, they never seem to wholly absent. In fact, the short list of schismogeneses that Bateson provides looks remarkably universal. Reciprocal exchanges like buying and selling or even gift giving, basic as they may be, are probably not so ubiquitous a part of human experience as the schismogeneses Bateson describes. Indeed, what sets these interactions most decidedly apart from all the other patterns of interlocking behavior that humans engage in is precisely the degree to which they are not just limited to humans: the ethology of many mammal and bird and even insect species would be impossible to describe without notions like nurturance and dependence, dominance and submission, display and spectating, competition and rivalry.

It is fair to ask whether what English speakers mean by "competition" or "display" and "spectating" and the rest can properly be applied to descriptions of other species' behavior, and ethologists are always careful to define those terms observationally. But whether we are making comparisons between species or between cultures, the connotations will differ while the underlying patterns of interaction remain very much the same. The schismogeneses simply describe the various patterns of positive feedback to which systems of behavioral interactions are subject. The fact that these patterns can be described as complementary or symmetrical and abstracted into mathematical and cybernetic terms is what constitutes their generality. Bateson calls them "pan-human elements in behavior" (Bateson 1991, 33), but he might just as well have said "pan-social." If our hypothesis is that achieving behavior is rooted in these interactions, then we can at least be assured that our explanatory approach is broad enough in principle to be applied across cultures and time periods.

That our three main historical explanations each identify fundamentally different schismogenic interactions at the roots of achievement poses yet another set of questions. These interactions all seem quite distinctly different from each other, and one of the assumptions underlying our traditional notions of causality is that different causes have different effects. Could the terms "achievement"

and "achieving behavior," as we've attempted to explain them, in fact be so loosely derived as to cover distinctly different phenomena?

That is most certainly true to some extent. If the notion of *arete* could change its connotations for the Greeks several times over three or four centuries, we must expect that in translating *arete* into the German *Tugend* or *Leistung*, or into the English "excellence" or "achievement," something may be lost. It is significant that the Greeks attached the term to civic and military achievements far more often than Nietzsche, who attached it more often to artistic and spiritual attainments than did McClelland, who confirmed the validity of the TAT by giving it to scientists. And yet, there is considerable overlap among these terms as well, so that some attainments would probably be included at any time under any of these translations. Could the differences in connotation between the Greek, German, and English words for achievement lead nonetheless to differences in the schismogenic interactions offered to explain it? Probably. The notion of honor, for example, seems suited to address a concept of achievement whose connotations lie in the military and civic arenas. The connection of achievement to financial reward in this country might similarly suggest a tie-in to competition as the ideological basis for a capitalist society. Perhaps a similar case could be made for the will to power in Germany. And given these differences, some variety in the explanations offered might be justified and even irreducible.

What Bateson adds to this discussion is important, because his analysis shifts the framework of explanation away from difficult to reconcile differences in the goals or needs of those who pursue achievement, towards patterns of interpersonal behavior *which are capable of mutual interaction*. Indeed, they are not only capable of mutually interacting, they virtually require it. As early as *Naven*, Bateson had noted that the boasting and competition so strongly in evidence among Iatmul males was a symmetrically schismogenic interaction that could destabilize relations within families and among moieties, and that it took complementary interactions, like the *naven* ceremony, to counter-act that tendency. The question that puzzled Bateson when he wrote the book was how these apparently independent interactions managed to balance each other so well in Iatmul society. As he encountered the principles of cybernetic theory, he came to realize that there was more than good fortune at work here:

> It was not good enough to say that the symmetrical schismogenesis happened by coincidence to balance the complementary. It was now necessary to ask, is there any communicational pathway such that an increase in symmetrical schismogenesis will bring about an increase in the corrective complementary phenomena? Could the system be circular and self-corrective?
>
> The answer was immediately evident . . . The naven ceremonial, which is an exaggerated caricature of a complementary sexual relationship between *wau* [mother's brother] and *laua* [sister's child], is in fact set off by over-weening symmetrical behavior. When *laua* boasts in the presence of *wau*, the latter has recourse to *naven* behavior. (Bateson 1991, 57)

It is not only conceivable but likely, then, that more than one of the schismogenic interactions implicated in our various explanations is

at work in the development of a commitment to achievement. As to how they might interact in this case, Bateson obviously doesn't say. He does indicate, however, that the self-corrective relationship described above between complementary and symmetrical schismogeneses is fundamental: "In mixed systems, schismogenesis is necessarily reduced" (Bateson 1972, 324). They work against each other, creating the negative feedback required for a larger, self-corrective system.

We can see the negative feedback that obtains between complementary and symmetrical schismogeneses in the interaction between competition and dominance on a battlefield. If competition alone were at work, two warriors might compete in hand to hand combat until they were both either dead or exhausted. But the possibility of domination is also there: one might be killed, which would end the interaction entirely; or one might submit and be taken prisoner. And to take it a step further: if the dominance/submission relationship between victors and prisoners is pushed too far, as in situations where the vanquished are debased and abused, there is always the possibility that the threat of death will cease to enforce submission and that a symmetrical schismogenesis will reassert itself in the form of revolt. This is one example of how competition and dominance/submission keep each other in check.

If we can assume that societies as well as individuals need to be "mixed systems" to some degree in order to survive, then we might

explore the possibility that the various complementary schismogeneses that have been offered to explain the pursuit of achievement all require some symmetrical schismogenesic interaction to be coupled with it. Since competition is the only symmetrical schismogenesis mentioned in connection with achievement, that seems a good candidate to start with.

It is relevant to recall in this connection Nietzsche's analysis of the role of the *agon* -- the contest -- in ancient Greece. While the Greeks typically focused on the honor accorded to arete as the motive for pursuing it, Nietzsche noted that the Greeks typically pursued their arete through competitions and contests. The Greeks invented the Olympics as an arena for the demonstration of athletic and martial arete; their tragedians and poets vied onstage in competition for public acclaim and awards; and even Socrates' dialectic can fairly be described as an intellectual contest. The teleological form of explanation so favored by the Greeks led them to identify honor as the final cause and goal of their pursuit of virtue, but Nietzsche is doubtless correct about competition as its vehicle.

The feedback between these schismogeneses is subtle but powerful. There is a reinforcing element to the competition itself that is only further aggravated by the interactions between the competitors and spectators: the competitors are encouraged to exhibit ever greater displays of prowess and virtuosity by the applause of the crowd.

This sets up a mixed system in which, contrary to Bateson's claim, schismogenesis seems to be reinforced rather than reduced. The contradiction can be explained by the fact that the complementary pride-and-admiration interaction does not obtain between the contestants. That these contests did not, typically, lead to bloodshed suggests a third schismogenesis at work, namely the dominance and submission interaction involved in the declaration of victory. Contests are rule governed interactions in which the end-point for interaction and the criteria for declaring winners are pre-arranged and agreed to by the contestants. By setting these parameters, the rules differentiate a contest from a fight and keep the potential schismo-genesis in such interactions under control. The annointing and honoring of the victor culminates the pride and admiration interaction between the contestants and the crowd; the acceptance of that decision by those not victorious in competition marks the shift from competition to a dominance/submission relationship among the contestants themeselves.

The infusion of these elements of dominance and submission into the larger circuit of interactions in a contest may also signal a shift in the interaction between contestants and spectators from a display and spectating interaction into one of pride and admiration. The latter two schismogeneses are clearly connected in the sense that we can hardly conceive of pride/admiration without the structure of display/spectating at its base. We might say that display/spectating is a necessary but insufficient condition for pride/admiration and that

the admixture of dominance/submission provides the "sufficing" condition.

If this analysis is correct, then there are three or four basic schismogenic interactions already implicated in the production of achieving behavior. The approach thus seems to address a wider range of relevant phenomena than did the Greek explanation, while preserving its essential insight. The next step is to apply the approach to Nietzsche's explanation: if the will to power as the source for achieving behavior can be mapped onto Bateson's fundamentals in a way that validates both its differences and commonalities with the Greek explanation, then the approach will have demonstrated enough flexibility and scope to be taken seriously.

Despite his deep affinities for the Greek perspective, a couple thousand years of recorded history convinced Nietzsche that the drive to achieve had to be uncoupled from the fickle favors of the crowd. He had the example of the many great artists and thinkers before him who had labored in obscurity or even against the tides of public opinion. He was himself barely read during his lifetime, and said he considered it a distinction. For Nietzsche, who serves his teleology spiked with irony, the reason for pursuing achievement had to be intrinsic to the pursuit, not dependent on extrinsic reward -- especially as bestowed by the herd. The will to power, the will that wills itself throughout all its interactions, met that requirement.

The will to power is not some idealist abstraction, however. It is a universal that exists only through individuals. That Nietzsche, like the Greeks, chooses to account for behavior in terms of its goal -- its final cause -- should not hide the fact that here, too, the goal is pursued through competition. That the goal is power rather than honor only removes certain constraints: a sense of fair play and respect for one's opponent may be less relevant to the interaction whether the competition is a rule governed contest or not; the diminished role of the crowd may mean that the identities of victor and vanquished must be settled directly by the contestants, prolonging the competition. With fewer stabilizing factors, the interaction is more likely to accelerate in intensity. Eventually, one will comes to dominate while another resigns itself to submission.

The lack of stabilizing factors only increases the likelihood that the cycle of domination/submission and competition will continue on. Whether because "power wills always -- more power" or because power invariably attracts opposition, the will to power inevitably finds new competition. Each succeeding interac-tion should display the same alternation between symmetrical and complementary schismogenesis that gives a semblance of stability to the "mixed system."

While the will to power thus provides a somewhat less complex account of achieving behavior than the Greek approach, it displays more than the minimal complexity required for a self-corrective schismogenic

system. And because the will to power governs the relationships within organisms as well as between them, it is also complex enough for Nietzsche to distinguish analytically between the creative spirit's pursuit of achievement and the simple, straightforward will to power of the battlefield.

The former is a sublimated, refined will to power developed out of one's "bad conscience" -- the guilt that the herd has taught the strong to feel over the promptings of their instincts. The spiritualization of man wrought by morality has made a battlefield of every strong person's soul. It is the will to power turned against itself. This contest within the individual self can lead to a crippling or extirpation of the instincts; or it can lead to their submission and sublimation to a higher ideal -- a victory over self by one's higher self. This self-conquest enables one to bend the strength of one's passions and instincts to purposes other than their own immediate satisfactions. It makes a higher, more spiritual level of achievement possible.

The resourcefulness of Bateson's approach becomes most apparent with respect to this aspect of Nietzsche's analysis. By distinguishing between contextual levels, Bateson was able to recognize both the dangers and the creative potential of "double binds" such as Nietzsche is describing here. And he is able to relate such conflicts to their social context, whether that be the family or the larger society.

Bateson does not have to afford a metaphysical status to the will to power to acknowledge dominance/submission as a "pan-human", universally available form of social interaction. And he can recognize the ubiquity of competitive interactions in just the same way. Given that we are socialized to identify and engage in such interactions, the moral strictures that incriminate those competing most successfully and achieving a dominant position constitute a classic double bind, especially since these conflicts are first realized within the family system where escape from such binds is most difficult and their effects most painful.

What Bateson loses in theoretical economy by not appealing to a single, fundamental principle, he gains in analytical flexibility. Nietzsche sees the overcoming of bad conscience as the resolution of a potentially debilitating moral conflict in which the passions are finally tamed and accepted and harnessed in the service of a more powerful organizing ideal. This accounts for the rare strength and singlemindedness of Nietzsche's "higher men" -- the great artists, philosophers and statesmen. But what of the "inbetween" men and women, those athletes, inventors, explorers, landscape gardeners, craftspeople, and so on and on, who have managed to train their best efforts, over long periods of time, towards the mastery of some lesser skill or challenge? Surely they don't all struggle with such deep, soul-wrenching conflicts?

Bateson accounts for the positive resolution of double binds generally in terms of the Level III learning of "trans-contextual" skills. If Level II learning involves the contextual learning that forms our character, Level III learning is what allows some people to recognize this socialization process for what it is and begin to consciously shape their characters in the way that Nietzsche suggests. Awareness of the contextual level of learning may also reveal itself less grandly, in "humor and religion, art and poetry," all of which depend more often than not on tensions between contexts of understanding (Bateson 1991, 149). This does not mean that humorists and artists have necessarily skirted the edges of schizophrenia in the development of their craft. While resolution of serious double binds -- those involving significant others -- may account for great creativity or religiosity (or schizophrenia), there are other, less serious double binds as well, which arise in everyday experience and which we may learn to inflict upon ourselves to advantage.

It is in connection with transcontextual learning and the overcoming of self-inflicted double binds that Bateson at one point nearly addresses our questions concerning the origins of commitment to achievement. He touches on the matter in an address titled "The Birth of A Matrix, or Double Bind and Epistemology," a retrospective look at his life's work given two years before his death from cancer. Typically, he approaches the subject of transcontextual learning and achievement only towards the end of the address, framing his approach

in terms of our general ignorance concerning the causes of cultural decay and progress. He suggests that the concept of a "therapeutic double bind" might be especially helpful in understanding various forms of "cultural advance" (*Ibid.*, 207). Not surprisingly, he finds a connection between cultural advance and the efforts of individuals to reach beyond their limitations, and he offers the example of the mountain climber.

The mountain climber who learns to navigate between the conflicting demands of his body (which demands cessation of painful exertion) and his goal (which promises emotional suffering should the body get its way), has learned to place himself in "a position of double bind, gratuitously" (Bateson 1991, 209). He has learned to push himself into painful situations with no reinforcement except that which he "can *reflexively generate* for himself" (*Ibid.*, 212). He has created an expectation for himself of a "sequence" of activities which must be completed before the body's need can be addressed. Successful completion is the reward, the satisfaction, for which this double bind was undertaken. The process as a whole involves what a mountain climber friend of Bateson's called "the *discipline* of not listening to the body when it screams for relief" (*Ibid.*). And Bateson asks, "What is *discipline*?" It is one of a series of questions he poses towards the end of his address. He asks, "Why do mountain climbers do this to themselves?" (*Ibid.*). And he wonders:

> Why does the Zen monk sit through hours of agony in the lotus position, his legs getting more and more paralyzed and his head getting more and more addled? And while he does this, why does he contemplate or wrestle with a *koan*, a traditional paradox, a sort of conceptual double bind? (*Ibid.*)

His answer to these questions is characteristically elliptical, intriguing and frustrating at the same time:

> In this region there are answers which are certainly "beyond the double bind," and yet equally certainly the answers will be related to double bind theory. We can only speculate about components of these answers:
>
> (1) They will surely include reference to ideas of *completion* of tasks.
>
> (2) They will include reference to "self" -- that half mythological entity whose apparent subjective reality somehow increases in situations of reflexive awareness.
>
> (3) We shall be talking about addictions to the feat of "cold turkey" defeat of all addictions of lower logical type.
>
> (4) We shall face some sort of positive addiction to the pains of facing double binds and conquering them.
>
> (5) We shall need a formal definition of *practice*. What is the musical performer doing between his public appearances? He, too, is engaging in behavior which (even if rewarded in the concert hall) is fundamentally related to double binds. It is a part of the long grind from quick superficial adaptation through automatism to the final skillful control of automatism. (*Ibid.*, 212-3)

He reiterates that "all this is speculation," but assures us that "the matter is not trivial" (*Ibid.*). So what are we to make of Bateson's speculations? It is interesting that his list of components provides no clue as to the underlying social interactions from which the pursuit of achievement arises. Bateson focuses instead on the

double binds and the transcontextual learnings on which that pursuit depends. This reflects his concern with the logical structure of behavioral processes; that is to say, with formal as opposed to final or efficient causes. A closer examination of the components on his list should make this clearer.

The first component on Bateson's list concerns the "completion of tasks." This recalls his description of the mountain climber's striving to reach the peak as an effort to complete a sequence "as he sees it" (*Ibid.*, 211). A "task" is just such a sequence of activities, each being instrumental in some way to its completion. The instrumentality inherent in task completion indicates that we are dealing with actions rather than behaviors: while behaviors can be defined objectively through a physical description of movement, actions are defined subjectively, in terms of intentions. Thus, the "blink" of an eye denotes behavior while the "wink" of an eye denotes an action. Because actions are defined primarily in terms of intentions, they can extend over considerable periods of time and cover a number of more limited activities along the way: "climbing a mountain," for instance, comprises the more limited actions of getting a grip, pulling oneself up, scaling the rockface, and so on.

Defining a task is thus a way of bracketing a sequence of actions and situating them within a broader context. The goal sets the end term for the sequence. Bateson would say that a task is of a higher

logical type than the activities that go into accomplishing it. Like any contextual interpretation, it sets parameters for subsequent action, narrowing the range of choices and identifying the key variables and markers to watch for. While various of the instrumental actions that make up the task may bring painful feedback, the constraints set by the larger task structure stipulate either that substitute action is called for or that, no substitute being available, one should press on through the pain. Without the context of a task structure that sets goal boundaries for an action sequence, it is hard to see how anyone could just press on and on through repeated disappointments and frustration.

What gives the task its staying power, Bateson suggests, may be its connection to self. Having noted that the varied activities involved in mountain climbing may bring the climber no rewards "except such reinforcement as he can *reflexively generate* for himself," the second component on Bateson's list builds on that idea by suggesting that the "subjective reality" of self "somehow increases" in situations of "reflexive awareness" like this (*Ibid.*, 212-3). Presumably, this induces him to continue his efforts; but it must be said that this is one of those typically elliptical suggestions of Bateson's which even a close reading of the whole essay barely helps to clarify.

Fortunately, the much needed clarification can be found in another essay, which also sheds light on the next two points on Bateson's list,

both referring to addiction. In an essay published in 1971 entitled "The Cybernetics of 'Self': A Theory of Alcoholism," Bateson set out to contrast the principles on which an alcoholic operates as he (unsuccessfully) sets out to control his drinking with the principles underlying Alcoholics Anonymous which, he notes, "has the only outstanding record of success in dealing with alcoholics" (Bateson 1972, 310).

The crucial difference he finds between the two approaches lies in their differing estimations of the power of "self-control": the alcoholic insists he has, or should have, the willpower to control his drinking while the first step in the AA program is to admit one is powerless over alcohol. That difference, he argues, stems from a fundamental divergence in "epistemological" premises. The term is placed in quotation marks because Bateson acknowledges that he is not employing "epistemology" in its customary philosophical sense. His use of the term covers both ontology (the study of what kinds of things there are) and traditional epistemology (the study of how we can know what we know, being what we are):

> There seems to be no convenient word to cover the combination of these two concepts. The nearest approximations are "cognitive structure" or "character structure," but these terms fail to suggest that what is important is a body of habitual assumptions or premises implicit in the relationship between man and environment, and that these premises may be true or false. I shall therefore use the single term "epistemology". . . to cover both aspects of the net of premises which govern adaptation (or maladaption) to the human and physical environment. (*Ibid.*, 314)

What defeats the alcoholic time and again in his efforts to give up drinking is that his epistemology, *when he's sober*, is in error. When in the sober state, he credits his "self" with a power over the rest of him that it just doesn't have:

> [He] will not or cannot accept the premise that, drunk or sober, the total personality of an alcoholic is an alcoholic personality which cannot conceivably fight alcoholism. (*Ibid.*, 312)

The inconceivability of this premise follows from basic cybernetic theory. Bateson reminds us that mind is comprised of innumerable interacting circuits which reach across our sensory, neural, and muscular systems; and that, within such cybernetic systems, no part functions independently of the rest:

> . . . [I]n no system which shows mental characteristics can any part have unilateral control over the whole. In other words, *the mental characteris-tics of the system are immanent, not in some part, but in the system as a whole.* (*Ibid.*, 316)

In short, there is no "self" in some commanding position over and above the rest of the alcoholic's personality that can counter his inclination to drink. The error is not unique to the alcoholic, but rather typifies the whole of Occidental culture as it has developed in the wake of Descartes:

> . . . [T]he "sobriety" of the alcoholic is characterized by an unusually disastrous variant of the Cartesian dualism, the division between Mind and Matter, or, in this case, between conscious will, or "self," and the remainder of the personality. (*Ibid.*, 313)

It is in this sense that Bateson refers to the "self" as a "half mythological entity": it is not that the term has no basis in experience, but that it lacks the powers that we have imagined it to possess. Its limitations become evident in what AA calls alcoholic "pride." This is not a pride over past achievement, Bateson notes, but "an obsessive acceptance of a challenge, a repudiation of the proposition 'I cannot'" (*Ibid.*, 321):

> The alcoholic's "pride" is "mobilized behind the proposition, "I can stay sober." But, noticeably, success in this achievement destroys the "challenge" . . .
>
> The challenge component of alcoholic "pride" is linked with *risk-taking*. . . . As success begins to appear probable, the alcoholic must challenge the risk of a drink. The element of "bad luck" or "probability" of failure places failure beyond the limits of the self. "If failure occurs, it is not *mine*." Alcoholic "pride" progressively narrows the concept of "self," placing what happens outside its scope. (Ibid., 322)

His "pride" thus places the alcoholic in a double bind where he is in trouble whether he is sober or not. The release from this double bind comes, if at all, through the process of "bottoming out" and the realization that one is caught between "the *obsession of the mind* that compels us to drink and the *allergy of the body* that condemns us to go mad or die" (Ibid., 331):

> This is a double bind correctly founded upon the alcoholic's dichotomous epistemology of mind versus body. He is forced by these words back and back to the point at which only an involuntary change in deep unconscious epistemology -- a spiritual experience -- will make the lethal description irrelevant. (*Ibid.*)

The spiritual experience referred to, of course, is the acceptance of one's own powerlessness over alcohol and the giving over of one's self to a "Higher Power." In practice, this means subsuming one's self in the larger community of AA. The diminished role of "self" is thereafter symbolized by the anonymity of giving up one's last name for an initial.

Getting back to our mountain climber: Bateson suggests that, instead of diminishing the role of "self" and denying it any special leverage over one's person, the reflexive awareness required to generate reinforcements in the face of pain may actually increase the "apparent subjective reality" of "self." I'm reminded here of "the little train that could": he repeats his mantra, "I think I can, I think I can . . ." all the way up the mountain, unsure of himself right to the end; and then he makes it! In a flush of pride he changes his chant to "I thought I could, I thought I could . . ." and reinforces his sense of his own self's power to control his fate. He is still laboring under the error of a false epistemological position, according to Bateson; but his situation is not pathological. This helps explain what Bateson means by a "positive addiction."

In his discussion of the mountain climber's ability to "go on into more pain and more suffering, until he reaches the top of the mountain," Bateson asks "why do mountain climbers do this?" (Bateson 1991, 212). He says it should be impossible; but then he notes that

drug addicts "sometimes also unaided break their addiction 'cold turkey'," and he asks paradoxically whether an addict could "ever become addicted to 'cold turkey?'" (*Ibid.*). This way out of drug addiction is the exception to the general rule of failure attending alcoholic "pride." How does it happen?

Interestingly enough, in *Mind and Nature*, written a year or two after the address in question here, Bateson revisits the case of the mountain climber and suggests that mountain climbing is but one example of the general category of explorative behavior, and that exploration is "not only self-validating; it also seems in human beings to be addictive" (Bateson 1979, 139). He recalls once again his friend's insight into the harsh discipline of climbing:

> Geoffrey Young used to say that the *not listening* to the weak and self-pitying complaints and pains of the body was among the main disciplines of the climber -- even, I think, among the satisfactions of climbing. The victory over self. (*Ibid.*, 139-140)

What was a loosely speculative analogy in the address between embracing the pain of mountain climbing and becoming addicted to "cold turkey" is here tightened and extended to include the whole context of explorative behavior. The addictive potential of discipline is not an unfamiliar observation -- I've heard runners ascribe it to the beta-endorphins the body manufactures to raise pain thresholds in response to stress. But Bateson is connecting the addictive satisfactions of discipline not with peptides but with "victory over self," a phrase

we've met before in Nietzsche. Bateson's explanation of this notion helps distinguish the apparently enhanced awareness of self in positive addiction from the diminishment of self in alcoholic "pride":

> Such changing of "self" is commonly described as a "victory," and such lineal words as "discipline," and "self-control" are used. Of course these are mere supernaturalisms -- and probably a little toxic at that. What happens is much more like an incorporation or marriage of ideas about the world with ideas about self. (*Ibid.*, 140)

Bateson clarifies this notion of an enhanced self which incorporates ideas about the world with another analogy, this time to totemism:

> For many peoples, their thinking about the social system of which they are part is shaped (literally in-formed) by an analogy between that system of which they *are* the parts and the larger ecological and biological system in which the animals and plants and the people are all parts. . . .
>
> In its late and partly secular form, totemism is familiar to the occidental world as the premise of heraldry. Families or patrilineal lines claim ancient dignity by depicting animals on their heraldic shields or totem poles. . . . Such representations of family status in a mythological hierarchy often aggrandize self or own descent at the expense of other family lines. As this more prideful component of totemism increases, the larger view of relationship to the natural world is likely to be forgotten or reduced to a mere pun. (*Ibid.*)

Does the mountain climber or runner -- or the achiever in general -- in fact experience this more expansive, more connected view of the self? That would be a topic for research, certainly. But there does seem to be a prima facie difference between the explorer's competitive effort to go "where no one has gone before," which is an inherently social interaction even in the absence of others, and the alcoholic's lonely, internal struggle for sobriety and re-integration into normal

human society. The pride of achievement is surely less endangered by its commitment to risk-taking than the alcoholic's "pride." And so, perhaps, is its sense of self.

At this point, the pieces of the puzzle start to fall into place. Discipline is a potentially positive addiction to "the pains of facing double binds and conquering them" -- the double bind of the mountain climber, for instance, being the pain of his body should he continue his climb versus the pain of disappointment should he not exercise the self-control necessary to complete his task. The double bind of the alcoholic follows much the same pattern. The sense of participation in a larger, social self which helps the climber attain victory over his lesser, complaining self likewise mirrors the pattern of the alcoholic who, in bottoming out, accepts defeat for his private self in favor of participation in the larger, social self of AA. It is interesting that the alcoholic's longterm dependence on AA is sometimes viewed cynically as trading in one addiction for another. The notion of positive addiction helps clarify that assessment.

Giving up an addiction "cold turkey" seems to represent for Bateson the possibility of overcoming a pathological addiction with the positive addiction to "victory over self" instead of with the 12 step group. If the positive addiction to discipline can thus defeat the addiction of alcoholism, then perhaps that same addiction to a larger sense of self can addict one to defeat of all addictions of "lower

logical type" bound up with an epistemologically unsound, dualistic sense of self.

It is hard to assess Bateson's approach here since he so barely sketched it out. The idea that the discipline necessary to achievement might work to overcome more pathological addictions is certainly open to question. I think it's probably true that those committed to achievement are more likely to give up habitual distractions like television, gambling, and light reading. Nietzsche was surely correct about the unusually high number of celibate philosophers. I'm less convinced, however, that their discipline enables high achievers to give up chemical addictions. Stories about substance abusing athletes are hardly a recent phenomenon; the number of writers, poets, artists and musicians who have drunk or drugged themselves to an early grave is truly staggering; and while scientists tend to be longer lived, there are stories enough but them as well -- Johnny Von Neumann was a notoriously prodigious drinker, to name but one, and Bateson's own interest in the problem of addiction may have gone beyond the merely clinical. On the other hand, Bateson quotes the adage "*in vino veritas*," and argues that the intoxicated state helps restore the more expansive sense of self that our dualistic culture routinely inhibits. Perhaps that gives it exceptional status. There is just not enough here to go on.

Such details aside, the broader outline of Bateson's linkage of victory over self with discipline and the overcoming of double binds certainly captures much of what Nietzsche had to say on the sources of achieving behavior. There does seem to be a major difference between Nietzsche's emphasis on the higher man who individuates himself away from the herd and Bateson's emphasis on overcoming the individuated self in favor of a more participatory, social self. But the fact that Bateson's approach ties into so many other concerns like addiction, self-validating behaviors, learning theory, and so on says more about its overall adequacy as an explanatory approach than does any details of its agreement or disagreement with Nietzsche's theory.

The last of the components on Bateson's list, like the first, goes beyond matters of concern to either Nietzsche or the Greeks to address a question of formal rather than teleological or efficient causality. It typifies Bateson's cybernetic approach. In asking for a formal definition of practice, he is seeking to understand its logical typology in relation to the dynamics of two relevant processes: double binds and habituation.

That practice is "fundamentally related to double binds" is hardly surprising after our examination of discipline. Practice needn't involve pain, but it is by definition not something pursued for its own sake. It may be hard or simply boring; and the satisfaction one feels at the refinement of one's abilities is always limited and contingent

upon duplication in a public performance. It is the work one has to do, over and over again, in order not to disappoint one's own expectations. It is the mild double bind implicit in all deferred gratification. Learning to place oneself -- and keep oneself -- in double binds like these and learning the value of repetition is an essential part of learning how to learn. It is a character builder.

Repetition is the aspect of practice that ties it into the larger process of habituation. But what Bateson calls "the long grind from quick superficial adaptation through automatism to the final skillful control of automatism" is a special case of habituation, not like unconsciously turning out the lights on leaving a room (Bateson 1991, 213). Bateson was interested in habituation as the cognitive parallel of the general tendency of living things to maintain flexibility at the adaptive level by "hard-wiring" into the genome those adaptations which have proven most successful. It is one of nature's most effective strategies:

> When we encounter a new problem for the first time, we deal with it either by trial and error or possibly by insight. Later, and more or less gradually, we form the "habit" of acting in the way which earlier experience rewarded. To continue to use insight or trial and error upon this class of problem would be wasteful. These mechanisms can now be saved for *other* problems. (Bateson 1972, 351-2)

Bateson believed that the unconscious provided a similar function. What distinguishes practice from the usual habituation process, however, is that it is, in fact, pursued consciously. Learning to play

an instrument (or wield a sword or tennis racket or whatever) involves a vast number of "superficial adaptations" -- learning to match notes with fingerings, learning to move from one fingering to another, learning to match those movements with rhythms, and on an on. Done often enough, these sink to the level of "automatisms" like tying shoes; but the would-be musician continually reviews key variables like speed, accuracy, and "flow" for possible improvements. Practice, in effect, sets up a process of self-correction on one's habituations. Bateson refers to the self-correction at work here not as "feedback" but as "calibration."

Calibration is to feedback as form is to process; it is of a different logical type. To illustrate the difference, Bateson offers the contrasting situations of shooting a rifle versus a shotgun:

> The marksman will look along the sights of his rifle and will note an error in its aim. He will correct the error, perhaps creating a new error which again he will correct, until he is satisfied. He will then press the trigger and shoot.
>
> What is significant is that the act of self-correction occurs *within* the single act of shooting. . . . [T]he term *feedback* . . . characterize[s] this whole genus of methods of perfecting an adaptive act.
>
> In contrast, consider the case of the man who is shooting a flying bird with a shotgun . . . In such cases, what must happen is that an aggregate of information is taken in through sense organs; that upon this information, computation is completed; and that upon the (approximate) result of that computation the gun is fired. There is no possibility of error correction in the single act. To achieve any improvement, correction must be performed upon a large *class* of actions. . . . By long practice, he must adjust the *setting* of his nerves and muscles so that in the critical event, he will "automatically" give an optimum performance. This genus of methods . . . [is called] *calibration*. (Bateson 1979, 195-6)

Another example would be the thermostat: whether it switches on or off is determined by feedback within the mechanism of the thermostat; whether its *setting* needs to be adjusted for a higher or lower temperature, however, is a calibration that requires the conscious involvement of the home owner following sufficient experiences at the original setting. The practice that a musician --or any other practitioner of a skill requiring physical coordination -- undergoes is, similarly, an attempt to consciously adjust one's neuromuscular "settings."

While calibration is thus of a different logical type than feedback, it would be inaccurate to say that it is necessarily of a *higher* type. In practice, calibration and feedback tend to alternate back and forth in an hierarchic sequence of more and more inclusive levels. A good example can be drawn from the field of law enforcement:

> A driver of an automobile travels at 70 miles per hour and thereby alerts the sense organ (radar, perhaps) of a traffic policeman. The bias or threshold of the policeman dictates that he shall respond to any difference greater than 10 miles per hour above or below the speed limit.
>
> The policeman's bias was set by the local chief of police, who acted self-correctively with his eye on orders (i.e., calibration) received from the state capital.
>
> The state capital acted self-correctively with the legislator's eyes on the voters. The voters, in turn, set a calibration within the legislature in favor of the Democratic or Republican party.
>
> Again, we note an alternating ladder of calibration and feeback up to larger and larger spheres of relevance and more and more abstract information and wider decision. (Ibid., 198-9)

Bateson details a similar hierarchy with respect to thermostats and the home owner, whose own biases can be reset in various ways. And the marksman, too, can recalibrate and improve his aim with practice as he learns to control his breathing, timing, heartbeat, etc.. In the case of the musician, the alternation from calibration to a higher level of self-corrective feedback occurs once practice has produced a level of mastery such that the performer in the concert hall can respond appropriately to the affect of that audience in that hall on that particular evening. And that is what Bateson means by "the long grind from quick superficial adaptation through automatism to the final skillful control of automatism."

By distinguishing these formal stages in the long process of mastering a musical instrument, Bateson goes beyond simply categorizing practice as a special type of habituation marked by steeper learning curves. He identifies a deeper, general pattern of alternating self-corrections that is applicable to a wide variety of phenomena and analyzable in logical and mathematical terms. In his distinction between feedback and calibration and in his outlining of how the two interact in practice on the way from novice to mastery, I think Bateson has provided an insight into the complexity of skill development that is usually overlooked.

By relating practice to discipline and discipline to addiction through their common reliance on double binds, Bateson has, in

addition, helped to take those terms which have been only loosely or metaphorically connected in everyday speech and re-establish them on a more precise scientific footing that allows us to examine those connections. By removing the notion of "will" and denying any active agency to "self" in his explanation of these phenomena, he has also managed to avoid the mentalism that modern behavioral science so strongly resists. In other words, while Bateson's speculations on the components of an answer to the question of achieving behavior do not, in fact, provide that answer, they do provide usable and useful directions for further research. Together with the capacity of Bateson's approach to incorporate insights from other thinkers as to the motivations and causal factors underlying commitment to achievement, I think it's fair to say that Bateson has provided a better theoretical framework for pursuing the question than anyone before or since.

His approach, like Plato's, roots the human pursuit of excellence in behaviors that are not limited to human beings, while preserving its dependence on the uniquely human ability to learn about learning. The historically identified factors of competition, public recognition and honor, dominance/submission, and the nurturing of independence are not only accorded a place within Bateson's framework, they are recast as behavioral interactions capable of mutual reinforcement and self-correction. This renders them suitable for formal restatement in terms amenable to mathematical and logical analysis. That means they can be

mapped onto the tautologies -- "the eternal verities" -- which are the fundamental truths to which all explanation aspires.

The social level of analysis represented by these schismogeneses is then connected directly to a theory of learning in which character development is of central rather than peripheral concern. I doubt that could be said of any system of philosophy or psychology since the time of Aristotle. And by recasting the final causality on which Aristotle's philosophy depends in terms of mutual causality and formal explanation, Bateson's cybernetic approach makes talk of goals and purpose -- and achievement -- at last intelligible to modern scientific discourse. The fact that Bateson's idea of achievement and cultural advance depends as much on individuals learning of transcontextual skills as on the social interactions and their contradictions which make such learning necessary, relates the individual to society and nature to nurture in a refreshingly evenhanded way. If, once again, this seems to recall the philosophies of ancient Greece, that is to be hoped for in an approach that rejects the dualism that has dominated Western thought since their eclipse.

The promise of Bateson's approach to the question of achievement is, of course, not fully realized either in his own work or here. Where I think his list of components falls short, ironically enough, is in addressing the dedication of scientific researchers like himself. His list seems geared towards factors involved in perfecting physically

based skills like art and sport rather than towards the factors involved in intellectual attainments. Though we talk of science and math as "disciplines" and of researchers in those fields as "disciplined," we are not talking "of the *discipline* of not listening to the body when it screams for relief." And it is not clear to me in what sense a scientist or mathematician "practices" his craft.

That is not to say that there is no connection between the development of physical and intellectual skills. The discipline of the scientist or mathematician involves learning to hold oneself to a standard of rigor in one's experiments and proofs that is as high in its own way as any mountain. Trying to prove a hunch or hypothesis can bring frustration and pain analogous to beating one's head against a wall. There is a sequence of activities which the dedicated researcher always feels must be completed, regardless of competing inclinations. The rewards along the way to achievement are, indeed, only such as can be reflexively generated -- an insight here, a task completed there, a sense of getting closer all the time. There are double binds at work here, too. There is what we might call "obsession," if not addiction, though the differences at this point are obscure. And there is also the long, slow progress towards mastery of one's subject. Bateson has certainly given us the starting points for consideration of lifelong intellectual pursuits.

It is not that the components of intellectual achievement might be different than the one's Bateson provides us here; but there may be additional ones, like the role of collective and collaborative enterprise; and the ones he has listed may need some considerable refinement. What can't be disputed, I think, is that Bateson has given us a set of tools and a way of thinking about the question that goes beyond what was available to us before. And lying in the background of this inquiry is a broader theory of character development and learning -- of a theory of mind -- whose depth we have only scratched. It has all the makings of a remarkable achievement. What it lacks most is recognition.

I declared my intention back in the introductory chapter of this work to pursue an examination of Bateson's ideas on two levels: first, by applying the methods and insights of his ecology of ideas to the question of why human beings pursue achievement; and then, per the success of that effort, by assessing those methods and insights in terms of their overall contribution to the advance of the behavioral sciences. So now it is time to ask, what is the measure of Bateson's achievement?

We begin with the understanding that Bateson himself so clearly shared, that his contributions depended, perhaps more than most, on those of others. Bateson did not invent cybernetics, or information or organization theory and his debts to Russell and Whitehead's theory of logical types were profound. His network of friends and relations, collaborators and correspondents, stretching from his father, William Bateson, to C.H. Waddington and Warren McCulloch; from A.R. Radcliffe-Brown to Ruth Benedict, Alfred Kroeber, and his wife, Margaret Mead; from Norbert Wiener and Johnny Von Neumann to Claude Shannon and Heinz von Foerster; from Kurt Lewin to Erik Erikson, R.D. Laing, and Adelbert Ames; from Konrad Lorenz to John Lilly; and including too many other luminaries to even list, reads like a who's who of the leading thinkers of the first two thirds of this century.

What Bateson shared with all of them was a predilection for the most fundamental questions. What set him apart was the peculiarly reflexive nature of his fundamental questions: what is mind? how does it learn and evolve? what kind of explanation do such questions require? what other questions require this same sort of explanation, and why? Questions like these, that reflect upon their own foundations, are the province of philosophy and it is fitting that Bateson eventually came to understand his field as natural epistemology -- and fitting that the field he so described didn't really fit with any field of study he knew. His new science, the ecology of ideas, would be included today within the emerging, still not fully shaped

field of cognitive science. Bateson's task was to sketch its epistemological foundations.

To understand the magnitude of Bateson's task, consider the challenge it presented to the main thrust of the behavioral sciences as this century began. Bateson was well aware of the historical development whereby the older, more theoretically developed physical sciences became the touchstone for the emerging biological and behavioral sciences of the 19th century. The problem these latter sciences faced was how to ascend from the fundamental levels of organic chemistry to the macroscopic levels of observed behavior in organisms; or, going in the other direction, how to descend from the highest levels of analysis back to their biochemical foundations -- in other words, how to ground truths at the higher level in the truths of the lower.

Bateson's contention was that the choice of energy as the bridge between "behavioral data and the fundamentals of physical and chemical science" was understandable but wrong, that the bridge had thus been built "to the wrong half of the ancient dichotomy of form and substance". The result, Bateson said, was the proliferation of heuristic concepts in place of fundamental principles, an over-emphasis on induction at the expense of deductive theory, and a lot of misplaced effort: "a very large part of the fundamental structure of nineteenth-century science," Bateson argued, was simply "inappropriate or

irrelevant to the problems and phenomena which confronted the biologist and behavioral scientist" (Bateson 1972, xxi). His remedy, and his task, was to "revisit the ancient dichotomy" and build a new bridge "between the facts of life and behavior and what we know today of the nature of pattern and order" (Ibid., xxvi).

In our account of the history of speculation on how humankind comes to pursue achievement, we have returned time and again to that ancient dichotomy and to the various attempts to bridge it. Aristotle built his bridge between form and substance on the foundation of final causality, its keystone being the Unmoved Mover who was not only the ultimate end but also the ultimate source of all motion and, hence, of efficient causality. The concepts of purpose and hierarchy, which were teleology's essential intellectual contributions, both pointed, unfortunately, toward a theological terminus in a history of ideas in which science gradually gained sway over faith.

Modern science, if not the modern age itself, can fairly be said to begin with Galileo's rejection of teleology in favor of the mathematical analysis of motion within the explanatory framework provided by efficient causality. The understanding of organic life and behavior without the concepts of purpose and hierarchy, however, proved more difficult than some of the early physicalists, at least, anticipated. While teleology clearly lost that longest of wars, it must be said that efficient causality managed but a rather Pyrrhic

victory. Hume's radical skepticism, born of the same empirical spirit that animated modern science, stripped away most of what was once understood as causality though it took several hundred years for the full implications to sink in.

What was once the universal and all-encompassing rational necessity of efficient causation has been reduced in the 20th century to mathematical correlations indicating functional dependence. These more than adequately serve the purpose of the physical sciences, which is to predict (and thus, control) the phenomena of experience within an elegant theoretical structure of deductively arranged and empirically grounded propositions. They do not fulfill the purposes of the behavioral sciences, however.

It is not that correlations can not be made, or that behavior can not be predicted and controlled -- they certainly can in most of the biological/ behavioral world, including the realms of human behavior. But there is too little usable theory, too much that is not explained by antecedent conditions, and too much that passes for science that, Bateson warns, is simply wrong.

It might be helpful to lay the ancient dichotomy out visually to see where Bateson's new bridgehead takes us:

FORMAL CAUSE	--	FINAL CAUSE
|		|
MATERIAL CAUSE	--	EFFICIENT CAUSE

It is easy to map the connections among these. Bateson's dichotomy of form and substance splits the top from the bottom half of the table. Plato and Aristotle and the whole of German idealism stands above, the scientific sensibility, from atomists to Skinnerists, sits below. Historically, emphasis seems to circle clockwise, as in the ancient world: from the Ionians' underlying substance to Plato's formative ideas, on to Aristotle's ends. In the modern era, Aristotle's finality is surpassed by Newtonian mechanics, which is upstaged in turn by modern physics' return to ultimates. If Bateson is correct, and there are many signs he is, the time is come again for sciences of form and pattern.

There is another dichotomy cutting vertically, with the causes for things being what they are on the left, and the causes for why things happened as they did on the right. Dividing the terms this way emphasizes the split between Plato's mathematicism and Aristotle's empiricism, and between Newton's and Neils Bohr's physics. It also questions any ultimate distinction between causes coming before and after the fact, and between ultimate particles and ultimate ideas. Bateson looks at these pairs together and sees linear and circular

causality, entropy and organization. He sees an emergence of top from bottom. Logically, the progression runs counter-clockwise, from physical substances subject to linear causality, which occasionally feed back into circular causal systems, which are then subject to the patterns and hierarchies that the cognitive sciences have uncovered. These systems eventually die or disorganize, leaving only their physical elements.

What Bateson and the other cyberneticists realized back in the Macy Conferences of the 1940's was that the tenacity of teleological explanations both in every-day speech and in the applied behavioral sciences could be accounted for in terms of the formal properties of systems of reciprocal causality. They realized that organization and information were subject to rules beyond the regularities of linear cause and effect. They realized that these rules were inherent in the phenomena and not imposed by us. They realized that truth in this domain was established deductively rather than inductively, and that a new array of logical and mathematical tools would be needed to capture it.

What Bateson and his colleagues offerred was a type of explanation that relies neither on antecedent conditions nor on purposes to be realized after the event. It relies instead on identifying the patterns or forms, the fundamental logical structures, that govern interactive systems subject to feedback and responsive to difference.

While it can't tell us which social interactions underlie the commitment to achievement, it can tell us that neither competition nor dominance/submission alone can provide a full explanation. While it can't tell us who might be honored for their achievements, it can tell us that whoever who has undertaken the pursuit of achievement will not be dissuaded from it by a failure to win honors. This pattern of not predicting what will happen but, rather, what won't is characteristic of what Bateson called "cybernetic explanation":

> Causal explanation is usually positive. We say that billaird ball B moved in such and such a direction because billiard ball A hit it at such and such an angle. In contrast to this, cybernetic explanation is always negative. We consider what alternative possibilities could conceivably have occurred and then ask why many of the alternatives were not followed, so that the particular event was one of those few which could, in fact, occur. . . .
>
> The negative form of these explanations is precisely comparable to the form of logical proof by *reduction ad absurdum.* In this species of proof, a sufficient set of mutually exclusive alternative propositions is enumerated, e.g., "P" and "not P," and the process of proof procedes by demonstrating that all but one of this set are untenable or "absurd." It follows that the surviving member of the set must be tenable within the terms of the logical system. (Bateson 1972, 399-400)

The events that are deemed "untenable" through cybernetic explanation become so by virtue of the restraints operating on the system. Sometimes they are purely logical, like the impossibility of stochastic process without a source of random variation; more often, the restraints operate through feedback or redundancy. Feedback restrains the possibities of variance in a system in ways we've already examined. Redundancy introduces pattern and predictability into aggregates, thereby restraining the possibility of items that don't fit

the pattern. Communication is so rife with redundancies that w_ h_v n_ tr__bl_ r__d_ng th_s m_ss_g_, _v_n w_th th_ v_w_ls m_ss_ng. It is impossible for there to be consonants in most of those spaces, and indeed only certain vowels will do.

Another tactic of mathematical proof that helps give cybernetic explanation its power is the use of mapping or "rigorous metaphor":

> An algebraic proposition may, for example, be mapped onto a system of geometric coordinates and there proven by geometric methods. In cybernetics, mapping appears as a technique of explanation whenever a conceptual "model" is invoked or, more concretely, when a computer is used to simulate a complex communicational process. But this is not the only appearance of mapping in this science. Formal processes of mapping, translation, or transformation are, in principle, imputed to *every* step of any sequence of phenomena which the cyberneticist is attempting to explain . . .
>
> The relations which remain constant under such transformation may be of any conceivable kind. (Bateson 1972, 401)

The simulation of mathematical proof in these emerging formal sciences, Bateson tells us, was new and "of more than trivial interest" (*Ibid.*). In effect, they provided another explanatory model to complement, and in some fields even replace, the reigning scientific paradigm. The conferees of the numerous Macy Conferences, continuously entitled "Feedback Mechanisms and Circular Causal Systems in Biological and Social Systems," were obviously well aware of the applicability of cybernetic tools to other sciences. Bateson did not invent these methodologies, but he was the first to seriously apply them across disciplinary lines, and he was the first to address their deeper philosophical implications.

In this study, we used Bateson's ideas and methods to understand why some people (and some societies) dedicate themselves to virtuosity and notable achievement. The question was first asked and answered by philosophers. In the 20th century, it has been asked by behavioral scientists. That it is still being asked by parents and teachers and those proposing educational reforms shows that the question is far from exhausted, and that what's been learned has been difficult to apply. Translating earlier answers into cybernetic terms and principles, and developing Bateson's own thoughts on the question gave us a way to assess the effectiveness of Bateson's challenge to the reigning methodological paradigm in those fields. The approach seems effective. Because the question is significant for our understanding of what it means to be human, the challenge is also significant.

What is most striking about the results of Bateson's approach to the question of achievement is the prominence of contextual elements among the various explanatory components. To be sure, the commitment to achievement was placed in a social context by all who considered the matter, whether they attributed it to the pursuit of honor or dominance, or to the reinforcement of competitive and independent behavior in parent-child relationships. In Bateson's hands, however, what was originally considered a matter of individual character is recast as the internalized by-product of bi-polar, schismogenic interactions operating at the social level. What is internalized is a contextual learning that helps frame the events and determine the

choices that the individual feels are relevant and available to him. Bateson's own focus on the double binds involved in discipline and practice emphasizes potential conflicts at the contextual level and suggests transcontextual skills as the way to overcome them and use them in pursuit of achievement.

Bateson's insistence on the primacy of context is, of course, part and parcel of his cybernetic approach:

> This hierarchy of contexts within contexts is universal for the communicational . . . aspect of phenomena and drives the scientist always to seek for explanation in the ever larger units. It may (perhaps) be true in physics that the explanation of the macroscopic is to be sought in the microscopic. The opposite is usually true in cybernetics: without context, there is no communication. (Bateson 1972, 402)

Where I believe Bateson made his own most important contribution to the behavioral sciences is precisely in this area of contextual learning and in his general theory of an hierarchy of levels in learning. The definition of character as the aggregate of our contextual learnings as determined by our social interactions, and of transcontextual skills as the ways in which we become aware of our ability to learn at this level has potentially major ramifications throughout the behavioral sciences.

It certainly carries major implications for the whole program of behaviorist psychology. What makes Bateson's challenge so critical for behaviorists is that he uses their language. He comes out of the

empiricist tradition. That Bateson seems readier than they are to distinguish a contextual level of learning stems, in part, from the behaviorists' historical embrace of reductionism and linear causation. But Bateson's insistence on the importance of social interaction in the learning process also plays a role. The associational learning theory of which behaviorism is the fruit had its seeds in the social atomism of Hobbes and the other social contract theorists. The behaviorists' preoccupation with laboratory animals only reinforces their tendency to see learning as something the individual accomplishes in response to its external environment. Bateson's background in social anthropology led him to place far greater emphasis on the structures of interaction -- on kinship systems, value systems, and so on -- in determining an individual's patterns of learning and behavior.

The circular causality of the social interactions which shape individual behavior is not assimilable to the model of efficient causality. Nor is it congruent with the sort of explanation provided by behaviorism: although reinforcement supplies behaviorists with a basic feedback mechanism for learning, the possibility of two or more individuals mutually reinforcing a complementary or symmetrical response in each other in an ongoing relationship subject to runaway goes quite beyond the model. It also goes well beyond the social anthropology which Bateson started with. Social anthropology arose in opposition to Herbert Spencer and others caught up in the Darwinian revolution, "who attempted to fabricate the evolutionary development of

all cultures" (Lipset 1980, 123). It tended to downplay the role of temporal development. In anthropological terms, it preferred "synchronic" over "diachronic" analysis.

Skinner refers to this sort of approach as "structuralism," and rejects it as an "attempt to abandon the search for causes and simply describe what people do" (Skinner 1974, 12). This is a fair charge against all the classification systems of which social anthropologists are so fond. It is a fair description of Bateson's early work on eidos and ethos. But Bateson took an important step beyond a merely descriptive approach with his analysis of schismogenesis, which implied a dynamic, temporal development and required constraints. Skinner acknowledges the availability of various explanatory approaches within the structuralist position, but he is not impressed with any of them. He is as cognizant as Bateson that there is a mode of explanation at work here which is incompatible with efficient causality:

> Structuralism often goes beyond mere description, and one of its strategies has had a very long history. When the notion of a functional relation was not yet fully understood, explanations of phenomena were sought in their structures. . . . It has been said that from Plato to Kepler mathematics was not regarded as describing celestial motion but as explaining it. The search for explanation in form or structure goes on. Gestalt psychology tried to supplement the structural notion of habit formation with organizational principles. Mathematical properties hold their old explanatory force; it has been said, for example, that for one anthropologist "the relations of kinship do not evolve as much as they tend to express algebraic relations" *[author's note: Skinner typically doesn't bother to cite references, and I can only guess that the last reference is to Claude Levi-Strauss; who's being quoted is anybody's guess.]* (*Ibid.*, 74)

Skinner identifies the issue without resolving it. Can mathematics explain as well as describe? Is there a formal causality? It can, if pattern and number somehow inform our world. Communication is that information system. Skinner lived to witness the rise of cognitive science on foundations laid by cybernetics, information theory, and the other mathematical approaches that Bateson employed, and he was certainly aware of their tendency to dismiss behaviorism like an outgrown garment; but he never seemed to muster a general counter-attack on the order of the one he managed against mentalism.

His main complaint was that construction of what he called a "conceptual nervous system" continued to "turn attention inward, away from a genetic and personal history" (*Ibid.*, 240). This is fair with respect to those researchers in artificial intelligence, for instance, who presume to study the software of learning independently of the hardware, electronic or neural, that it runs on. A psychology of human behavior that does not take genetics or personal history into account is incomplete. But this charge is not fairly levelled against Bateson, whose *Mind and Nature* is a full length study of the interaction between evolution and learning; whose emphasis on the interactional contexts in which learning occurs is inherently developmental; and who rejects "factitious inner tendencies" no less resolutely than Skinner himself.

Bateson's challenge to behaviorism lies not in the construction of a conceptual nervous system, but in his proposal for a more adequate,

complex, and complete learning theory. The continuing reliance of empirical behavioral research in the English speaking world on the learning principles of an associational psychology more than 300 years old is no longer tenable. That it still commands such devotion as it does can only be attributed to the inertia of tradition and to the faith that, eventually, all knowledge of behavior will be reducible to the linear causality of biochemical processes. That we already know neurons to be connected in a bewildering array of interconnected circuits, and that such mutually causal systems form hierarchies whose effects are not predictable with the limited mathematical tools of the old models will only slowly change the way psychology is taught and pursued. In the meantime, cognitive scientists from other fields will be grabbing more and more of what was once psychology's turf.

A similar set of issues is likely to arise between the new cognitive sciences advocated by Bateson and the still growing field of sociobiology, but there is likely to be more room for accomodation between them. Sociobiologists are already focused on populations and on socially defined behaviors. Their mathematical tools are extensive and already include information theory and cybernetics (cf., Wilson 1975, 100; 299). Bateson shares more conceptual ground with the sociobiology than perhaps any other field. There are still differences, however.

The famous entomologist and sociobiologist Edward Wilson has argued that sociobiology represents the possibility of a "new synthesis," in terms rather like those that Bateson proposes for his ecology of ideas. He complains, as Skinner does, that sociology "still stands apart from sociobiology because of its largely structuralist and nongenetic approach" (*Ibid.*, 4), but he believes that will change:

> It may not be too much to say that sociology and the other social sciences, as well as the humanities, are the last branches of biology waiting to be included in the Modern Synthesis. One of the functions of sociobiology, then, is to reformulate the foundations of the social sciences in a way that draws these subjects into the Modern Synthesis. Whether the social sciences can be truly biologicized in this fashion remains to be seen. (*Ibid.*)

The caution that Bateson would urge on the sociobiologists concerns their sometimes dormitive appeal to genetic factors. A good example can be found in Wilson's discussion of warfare in genetic selection, where he reviews some of the previous research and makes some statements of his own that Bateson would likely take issue with. The research he reviews concerns the oft noted "benefits" conferred by war:

> These authors envision some of the "noblest" traits of mankind, including team play, altruism, patriotism, bravery on the field of battle, and so forth, as the genetic product of warfare. (*Ibid.*, 298)

It would be a caricature to suggest that Wilson is proposing a gene for team play and another for altruism, patriotism, and the rest; but the gap between the genetic and the behavioral levels shouldn't be passed over too lightly. The connections between the two levels is devious and difficult to uncover, and the assumption of a specific

genetic mechanism leading to specific behaviors in humans is almost invariably wrong. Wilson recognizes this, but his emphasis on the genetic factors underlying educational and cultural advances can sometimes focus attention in the wrong places. Consider his thoughts on what might save a population at risk of victimization at the hands of a genocidal aggressor:

> The only combinations of genes able to confer superior fitness in contention with genocidal aggressors would be those that produce either a more effective technique of aggression or else the capacity to preempt genocide by some form of pacific maneuvering. Either probably entails mental and cultural advance. (*Ibid.*)

Probably? Our search for the origins of achieving behavior suggests that the potential for "pacific maneuvering" would be available to any human society engaging in dominance/submission interactions -- which means virtually all of them. The key to whether they survived or not would depend on other feedbacks affecting the availability of the submissive response and on the abilities of individuals to generate and apply particularly effective submissive tactics. The emphasis of research here should be on social interaction and learning processes rather than genetic mechanisms, and it is not clear that the sociobiologists have anything new to offer on that score.

Wilson recognizes that reduction from the behavioral to the neurophysical levels is problemmatic:

> Whole patterns of animal behavior will inevitably be explained within the framework, first, of integrative neurophysiology, which classifies neurons and reconstructs their circuitry and, second, of sensory physiology, which seeks to characterize the cellular transducers at the molecular level . . . To pass from this level and reach the next really distinct discipline, we must travel all the way up to the society and the population. Not only the the phenomena best described by families of models different from those of cellular and molecular biology, but the explanations become largely evolutionary. (*Ibid.*, 6)

As Skinner points out, however, evolutionary theory only tells us the contingencies of survival, which in human society at least is only a small part of the story; to uncover the contingencies of reinforcement that underlie learning and cultural advance will take a science of behavior. And we can be sure, if Bateson's approach has any validity at all, that biology can not hope to do for human societies what Wilson hopes it will one day do for insect societies:

> . . . [T]here exists among experimentalists a shared faith that characterizes the reductionist spirit in biology generally, that in time all the piecemeal analyses will permit the reconstruction of the full system in vitro. In this case an in vitro reconstruction would mean the full explanation of social behavior by means of integrative mechanisms experimentally demonstrated and the proof of that explanation by the artificial induction of the complete repertory of social responses on the part of isolated members of insect colonies. (Wilson 1978, 319)

To what extent is sociobiology, like the associational psychology of behaviorism, inherently reductionist despite all disclaimers? That so many of Bateson's ideas and approaches could be taken for sociobiology suggests that it needn't be. But to the extent that the reductionist spirit still informs sociobiology, Bateson will remain just outside it. He is certainly clear on this: The interacting,

hierarchal circuits of mutual cause and effect that make up human social behavior can never be reconstructed out of that part which is an isolated human subsystem -- any more than the workings of a brain can be reconstructed from the firings of a single neuron, or the workings of language from examining a single word.

Perhaps the homeostatic worlds of ants will one day be reduced to a catalog of their integrative biochemical mechanisms. Ours is not that kind of a world: there is less "hard wiring", Bateson would say, hence more flexibility and more divergence in our social process. Cybernetics presents a top-down world, where what a thing is and does is defined by context, and contexts are not stable: social process is marked by schismogenic divergences and painful double binds, and by the learning of transcontextual skills that can help us use these to our own ends. Individualities are submerged here, nested like boxes in a Chinese puzzle. We need to understand this world we've built no less than the one that built us. Evolutionary history can only tell us so much. It needs need a better theory of learning than behaviorism.

It is not that the laws of cause and effect don't operate in this world of communicated information, but that this world has its own rules as well. And there's no going back: Bateson took the sociobiological idea that "the higher properties of life are emergent" a step farther out, into an emergent world of form and communication from which there was no return but death or disintegration. If Bateson

is right and there are two worlds of explanation, ontologically intertwined but epistemologically separate, then there is no reduction of one to the other.

So where does all this finally leave us in evaluating Bateson's achievement?

I suspect biographer Lipset's assessment that Bateson wasn't a truly original thinker will prove less insightful than Donaldson's suggestion that he might prove a "harbinger." Bateson's early work on schismogenesis, his theory of the double bind, and his later ruminations on the boundaries of self and mind all mark him as an original, if not a seminal thinker. He may not have had a major influence, but that is not what a harbinger does. Like the wave that sweeps unexpectedly over the beach, it tells of the tide to come and then recedes, not advancing the next wave in any obvious way. Bateson is a transitional figure, but because he was ahead of his time instead of behind it, he will remain a difficult thinker to assess for some time to come. Cognitive science is too new for retrospective reassessments.

In the great age of analysis that was the 20th century, he may be remembered as one of the few great synthesists, able to cross the boundaries from discipline to discipline, sharing insights, finding common ground, seeking always for the pattern that connects. The

remarkable thing is that he found it. In his later years, Bateson became increasingly bleak about the prospects for humanity. Caught as we are in self-reinforcing epistemological errors, he feared we had little hope of collective self-correction. And yet Bateson's last years were also marked by a spiritual quest that brought him to the study of Zen Buddhism, Taoism, and the possibilities of an emergent Mind within the evolutionary process. He began to envision an epistemology of the sacred. In the 20th century, he was one of the very few whose science reached so far.

I think Bateson will finally be remembered as a behavioral philosopher, much as we used to speak of natural philosophers, and that his reputation will rest on his work in epistemology and the philosophy of science. It is not a field likely to secure great fame, but it is the infrastructure on which others may one day build great achievements. Perhaps none of his accomplishments will long outlive him. Perhaps Bateson did not so much break new ground as, in Eliot's words, "to arrive where we started and know the place for the first time." But that in itself is quite an achievement.

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